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BOOK



"Better Living on Your Farm"

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Suggestions and Ideas for

Better Living On Your Farm



SINCLAIR FARM and HOME BOOK

This book has been prepared especially for you and your family, with some ideas and suggestions for better living on **your** farm. We hope it will serve you well when planning changes or improvements. Please accept it with our compliments, and keep it handy for future reference.

Your Local Sinclair Supplier

and

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FARM AND HOME BOOK

"Better Farm Living"

Edition

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IN THESE PAGES

you will read a little about some Sinclair products. There are many more. All are manufactured to meet exacting specifications—uniform, dependable, thoroughly tested on-the-job.

Sinclair is proud of its vast laboratory at Harvey, Illinois, as up-to-date as "tomorrow," and its team of highly skilled scientists whose efforts are dedicated to one purpose: perfecting for you the finest in petroleum products that always keep pace with rapidly changing mechanical improvements and requirements. To these men "the best" can always be made better.

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less erosion or loafing acres. Millions of dollars have been spent in the search for a fountain of youth for old and worn out soil. Now there are numerous combinations of fertilizers to renew the fertility of any kind of soil. Terracing, contouring, strip planting and other water and wind control methods are gradually conquering erosion. New minimum tillage methods are helping to reduce wind erosion and conserve moisture. More and more irrigation is being used to combat drought. The important part of all of these scientific advances is that they are public property and the facts and information about them are available to any farmer who wants to learn about them.

Crops of tomorrow

Crop varieties are being constantly improved and great strides forward have been made in the past few years. Hybrids that tolerate drought, short growing seasons, new methods of controlling insects and parasites, are common and getting better and more dependable. Plant breeding work with grasses and grains has produced new varieties that produce more to the acre. Fruit trees are smaller and easier to trim, spray, and pick. Berries are grown for larger production and with better keeping qualities. Vegetables, potatoes, beans, peanuts, cotton, cane . . . in fact all useful plant life is improving through research and breeding.

Larger crops with less work

More progress toward future methods is being made in crop handling. Once-over for planting, fertilizing and weed spraying (immediately after ground breaking), is the first step toward what may be radically new ways to get corn, soybeans and other crops started with less work in quicker time. The

harvesting picture has changed greatly in the past few years. Every farmer knows what the combine has done for wheat growers how field chopping and power drying is changing cattle feeding methods on many farms, how the corn picker has almost eliminated the exciting hand corn picking contests, and what the modern milking parlor with the bulk refrigerated bulk tank is doing for the dairyman. What will be next?

You can live like a king!

The living conditions of the farm family are keeping in step with the forward progress of farm methods. Electricity has made every convenience of the modern city home available to practically every farm family . . . light, running water, modern kitchens and laundries, automatic heating, telephones, radios and more and more television sets. Isolation is a thing of the past due to good roads and dependable automobiles. Consolidated schools with bus transportation assure education facilities for farm children that are equal to those of a big city. Fewer hours for farm work leave more time for relaxation and pleasure. Farmers, because of all of this, are happier, healthier and living longer. Combine all of these with the freedom and fresh air of country living and compare with the monotonous every-day-the-same routine of the traffic-fighting city factory or office worker.

The forward look in farming is "toward the sun." Be glad you are a farmer!

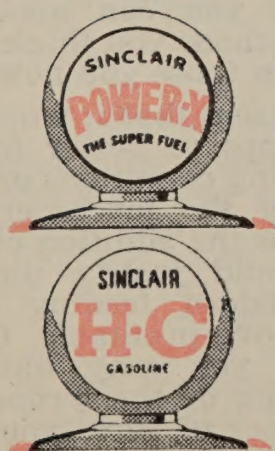


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Corn, Peanuts or Pork!

Whatever the products produced on your farm there are new varieties and new methods on the way to give you more profit and lessen your work.

"LET'S RAISE A BETTER kind next year than we did last year." That is the battle cry of both the crop farmer and the animal breeder, and they are getting results. It takes a long time to create a hybrid corn that will germinate faster, ripen a few weeks earlier, resist drought and corn borers and still produce more big, uniform ears per acre. Much has been done. Beautiful stands of corn are growing in northern short-season areas where it was considered impossible to grow it a few years ago. Small grains such as wheat, oats and barley have likewise been improved. Fruits, vegetables and in fact every farm crop has had its share in the gradual development of better varieties.

The same has happened to livestock. Scientific breeding and culling have produced dairy cows with a greater regular milk production than was ever known before. Modern hogs have more meat and less waste fat. Beef cattle withstand extremes of weather more easily and are ready for market more quickly.

Breeding is only a part of the story. Improved care and handling methods are, perhaps, even more important.

Each farm has individual conditions that determine its capacity to make money. No two farms are alike and no two farmers like to operate in exactly the same way. What seems to be good for your neighbor may not be the best for



Modern equipment, such as the corn combine, sets new standards in production and time saving.

you. Consequently the surest way to make certain that you are getting the most from your land is to learn all you can about the crops and methods you think might be better than those you now have.

You might find that it would pay to switch crops to better fit your local marketing conditions or make better use of the machinery you have. Perhaps the addition of more livestock would justify the purchase of modern feeding equipment and prove profitable. On the other hand, you may have too much livestock or the wrong kind for the number of acres you farm.

If you have a few acres that are

not suitable for crops or pasture, consider planting them with fast growing trees. Sawmill timber, fence posts and even Christmas trees, bring good long-term returns. New types of dwarf fruit trees make orchards easier to spray and harvest, and produce quickly. Large production poultry projects are becoming highly specialized and require a substantial investment in equipment but there is still plenty of room in many areas for well managed new ones. If your soil and location are right, you might find excellent extra profits in limited-area specialty crops such as onions, flax, castor beans, sunflowers, hybrid seeds, herbs, or berries.

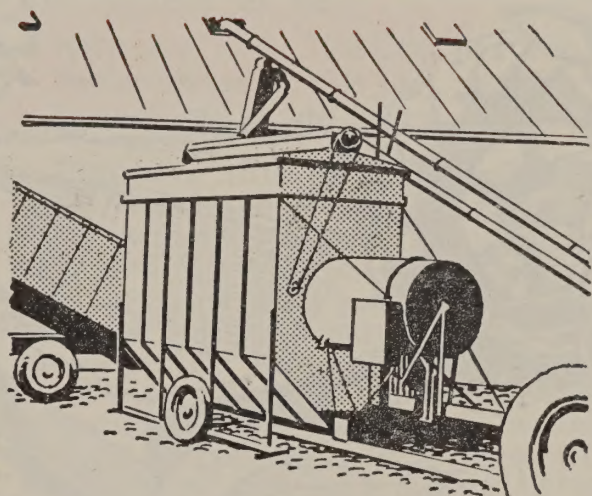
Mechanization and your farm

Farm mechanization is gradually taking the drudgery out of farming. The mechanical equipment on many farms is worth twice the value of the land. Manufacturers of equipment are making rapid strides in the design of machines for multiple purposes so that an owner can get more value from his investment.

The high cost of mechanization for small farmers is a growing problem, but it can often be solved by joint or community ownership, leasing or custom work contracting.

Saving steps

Agricultural experts say that if you are operating an average size diversified farm that you are spending too much time on daily chores. The care and feeding of livestock is probably taking half of your total work hours in a year. Half of the chores are hand labor. How much of this time and work could you save if you studied different ways of handling feed, moving cattle around, milking, handl-

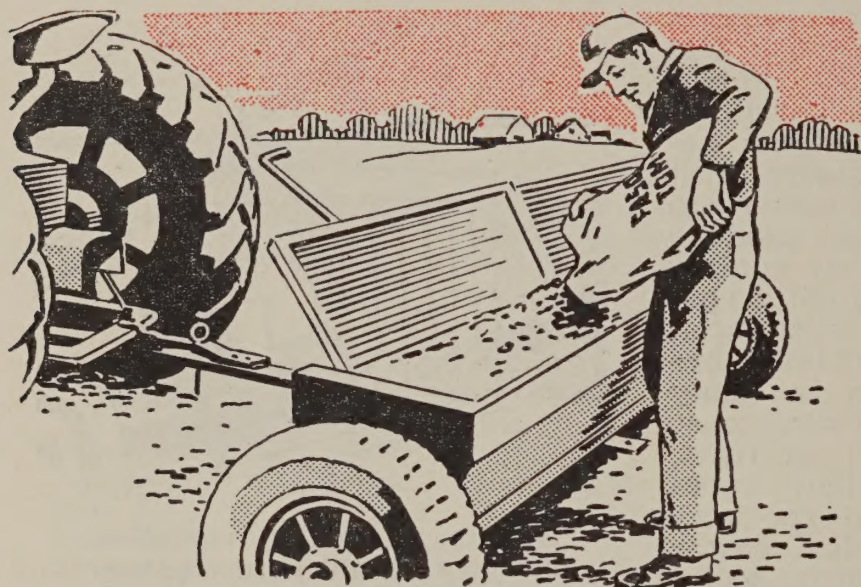


Dryers, of many varieties, are licking old man weather and bringing new security to farm operation.

ing milk, barn cleaning, and other routine jobs? It will pay you to make time studies to find such losses.

On many farms a comparatively simple and inexpensive rearrangement of buildings will reduce chore time from 10 to 25 per cent. Another change you may need to make is to go to bulk feeding, distributing it direct from silo and storage to the cattle with a power driven conveyor or self dumping carts doing the job in a matter of minutes. Free feeding from bunks may be one of your work-saver possibilities. Perhaps you could eliminate stalls and stanchions and install a milking parlor if you have a fair sized dairy herd. This would cut your time and labor per cow and allow you to increase income by adding more cows. Closer confinement of livestock, ground-level feeding, "zero" pasture methods and portable buildings are other changes suggested.

Thousands of steps can often be saved by the relocation of the farm shop, machine storage buildings or the gasoline storage tanks and lubricating facilities.



Improving Your Soil

Spreading fertilizer on your land is one of your most profitable operations.

THE CROPS you raise depend upon the fertility of your soil. Plants exist and flourish only when the ground they are in has an ample supply of the three basic plantlife elements and sufficient moisture to transform them into plant food. Virgin soil is a warehouse for these plant foods and every plant that grows absorbs and takes some of them away. Nature does not replace these elements as fast as they are consumed and as the warehouse is emptied the crops you plant produce less and less.

The three basic growth elements are Nitrogen, Phosphate and Potash. Lime is needed in acid soils to "sweeten" it, make soil nutrients, especially phosphorus, more available and to increase the efficiency of manures.

Nitrogen is the builder of foliage and partially replaceable with plowed-in legume and clover crops.

Phosphate is the most quickly absorbed food element. It goes principally into the root, tuber or seed part of the plant and into milk or bone of livestock. Very little goes into the stems or leaves of a plant and thus is not return-

ed to the soil. It cannot be grown and only a small amount is contained in manure.

Potash promotes stem and stalk growth—keeps the circulatory system of the plant "open" so that the other plant foods and moisture can do their work. Potash is present in most soils but often becomes locked below clay subsoils where it is unavailable to the plants. Healthy growth removes nearly as

Every plant...and weed that comes out of the ground takes with it a share of the soil's power to grow another plant. You have to replace it.

much potash from the soil as it does nitrogen. It must be replaced to provide a balanced plant-food soil.

Other minor or secondary elements are essential to plant life, especially when the crop is grown for livestock feeding. They are—

Copper	Sulphur
Zinc	Cobalt
Manganese	Boron
Iron	Fluorine
Magnesium	Calcium
Iodine	

The exact functions of these trace elements are not too well known at present but the lack of some of them seems to influence plant growth. Others are important in stock and human health and while they can be supplied in supplementary forms the object of plant breeders is to produce, if possible, a more complete nutritive ration in the crops we grow.

Use the right fertilizers and the right amounts

The most important requirement of fertilization is to supply the right proportions of nitrogen, phosphate and potash that are needed by your soil. Accurate tests of your soil are the only safe and sure way to determine what they are. Your county agent will show you how to prepare soil samples and tell you where to send them, if you have not done this before.

Mixed fertilizers are always designated by three figures—such as “10-15-10,” which means that there are 10 parts of nitrogen, 15 parts of phosphate and 10 parts of potash. If only 2 ingredients are in the mixture, a zero is used for the missing one—“10-0-10.”

Barnyard manure is, of course, the basic fertilizer used on American farms but it is not a complete fertilizer by itself. Its chemical composition varies with the feeding program utilized in its production. An average of numerous samples of fresh cow manure shows

the content to be—

Nitrogen	11.6 Lbs. per Ton
Phosphorus	...5.6 Lbs. per Ton
Potash	10.6 Lbs. per Ton

Compare this to the number of tons you have been using on an acre to the N - P - P requirements revealed by your soil analysis to find out how well you are building up your soil with manure, and how much extra commercial fertilizer is needed. Manure should be used when fresh; long periods of outside storage, exposed to the elements, allows rain, sun or freezing to reduce its value.

There are many brands of good commercial fertilizers on the market. Selecting the right kind, with specifications to fit your soil needs, and applying properly, is a long forward step toward maximum yields.

Nitrogen can be applied in granular, liquid or gas form. Phosphorus can be applied in either granular or liquid form. Granular fertilizers can be broadcast, drilled or placed in plant rows. Makers of farm machinery now provide many tractor, cultivator and other field machine accessories for the accurate application of fertilizers.

Fertilizers in liquid form are frequently added to irrigation water and distributed through the sprinkler system, or sprayed from a tank on a truck or tractor.

Fall fertilizing is becoming increasingly popular because it offers several advantages. Many suppliers give a price discount on fall sales to lessen their winter storage problems and to avoid some of the usual spring rush. If you buy in the fall and apply it then you will save two or three extra handlings, (which means a lot of work if you have several tons of it). Eliminates crowding your storage space and protecting it against weather or other possible damage.

What Crops Take Out of the Soil

Knowing that plants draw three principal elements from the soil—Nitrogen, Phosphorus and Potash—it is helpful to understand the average amounts of each consumed by some of the basic crops during a growing season. A few of these figures will establish a better understanding of soil depletion, the need for accurate soil analysis and a sound program of soil fertilization. The mature plant can never be better than its source of available, balanced nutriment.

Rate of Soil Depletion

The following table is based on good crop production averages on good soil. Compiled from authentic published data.

CROP	QUANTITY	NITROGEN (pounds)	PHOSPHORUS (pounds)	POTASH (pounds)
Alfalfa	1 Ton	46.7	11.7	45
Cotton	500 lb. Bale	65	25	50
Corn	1 Bu.	1.6	.6	1.2
Peanuts	1 Ton	85	15	50
Red Clover	1 Ton	40	10	35
Soy Beans	1 Bu.	3	1.6	2.4
Sugar Beets	1 Ton	7.7	3	9.7
Tobacco	500 lbs. Leaf	26.7	6.6	38.3
Wheat	1 Bu.	1.7	.7	1

The above figures cannot be used to estimate the amount of fertilizer you should put on your soil after a crop has been harvested, but it does show the approximate amount of plant nourishment such crops take out of your soil. No two fields have exactly the same reserve of plant-growth nutriment. The only way to tell is with accurate soil tests. Big crops are produced only on richly fortified soil.



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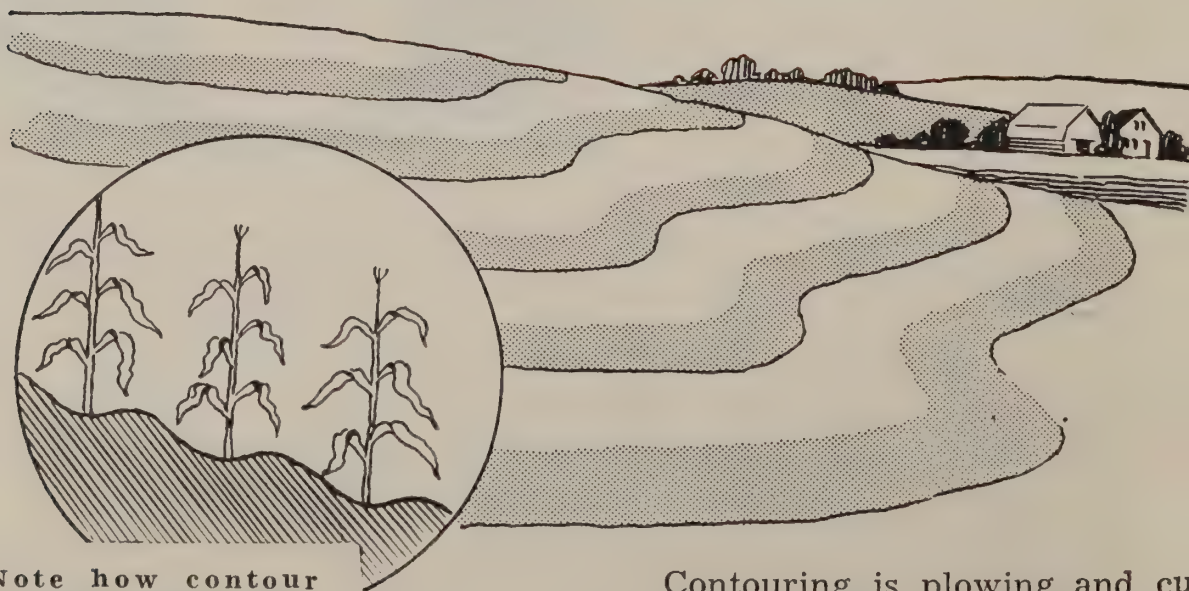
You can't do a thing about
the rain . . . but you can do
a lot about—

Water Control

Some highlights on modern methods of
stopping erosion and conserving rainfall.

MAKING WATER WORK for you instead of against you is one of the important projects in successful and profitable farming. Heavy rain often runs off of sloping ground so quickly that little of it gets a chance to penetrate into the soil and build up a reserve for dry periods. Stopping, or at least slowing down, runoff can be done. The time and labor cost of reshaping a hillside always seems high, but if properly done, the results over a period of years more than justify the expense. On the other hand flat lands create different problems of drainage or distribution of water to where it will do the most good and help increase crop production.

Contouring and Strip Planting



Note how contour plowing leaves level troughs to hold rain water to allow soaking in.

Contouring is plowing and cultivating around a hill or across slope instead of up, down and over. The furrows are kept as near

level as possible. This makes a series of close-together steps down the slope which slows runoff during a rain, holding it long enough to let the subsoil soak up all it can. Breaks the force of the runoff, too, so that it does not wash out seed, expose plant roots or carry away loose top soil. After lines are established, contour cultivation is as easy and fast as up-and-down coverage. No special machinery is required. It reduces tractor operation cost and time because the near-level work can be done at a more uniform speed.

Strip planting, recommended for the steeper slopes, is simply the planting of alternate strips, each 40 to 80 feet wide, of corn or grain and alfalfa or all three of them. The alfalfa holds back water and silting. Strip planting is also useful as a wind-erosion protection on flat land as well as on slopes.

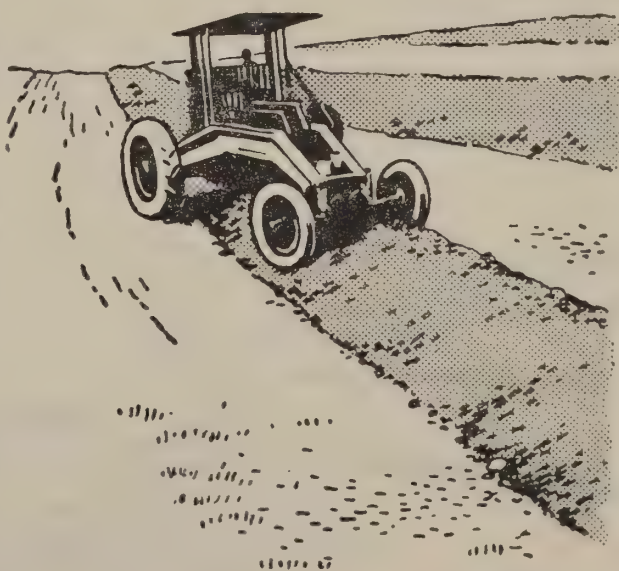
Terracing

Terracing carries contouring a long step further. Instead of single furrows cut level around a hillside, flat "shelves" are graded into the slope like giant steps (in some farm areas they are called "benches"). Properly built terraces do three things—(1) Stop downhill rain water flow, allowing it to soak into the subsoil, (2) Prevent the loss of top soil, seed and fertilizer, (3) Greatly increase the size of a hillside crop.

For farmers located on hilly or sloping crop land they are a No. 1 profitable investment. In many cases, terracing can be done with the farm tractor and a scraper attachment. However, more successful results and lower cost are accomplished by an experienced contractor equipped with a stand-

ard road grader and some earth moving equipment for filling water-made gullies and low spots. The most important thing is to have exact lines for the terraces laid out by someone well experienced in such work.

The height of the bank will be from 18 inches to 3 feet, dependent upon slope of the ground and width of terrace. The bank should have not less than a 45 degree slope. Terraces should be at least 4 corn-rows wide, 8 or 12 rows is better if slope will allow. The top of the bank should be raised to form a rim to retain more water on the flat area and prevent wash-outs. Banks are heavily seeded with permanent grass to hold firmly. Kill weeds on the bank; they waste water and give no early spring erosion protection. The apparent waste of 6 to 10 feet of crop land area between terraces is more than offset by the many advantages gained.



Slope should be 18" to 36" high at 45 degree angle.

Spreader Ditches for Rainfall Control

Dry years, when most moisture is needed, are the ones when violent heavy rainstorms are most apt to come, but if the rain is not controlled, it runs off too fast to give much benefit. Water can be distributed over large fairly-level fields by a network of spreader ditches which will trap the water long enough for it to soak in.

Such ditches are wide and flat—easy to drive over with machinery, or even a car, and seeded to alfalfa just like the fields into which they were cut. They fan out from natural draws and waterways and are laid out to: (1) distribute summer floodwaters over the most hayland, and (2) doing the same with spring snow-water which trickles off outlying hills at thaw time.

In some areas the ASC will pay a good share of spreader ditching as a conservation measure.

Steep-Slope Pasture Furrows

Grass production on hillside pasture land can be boosted as much as 30 percent by slowing down

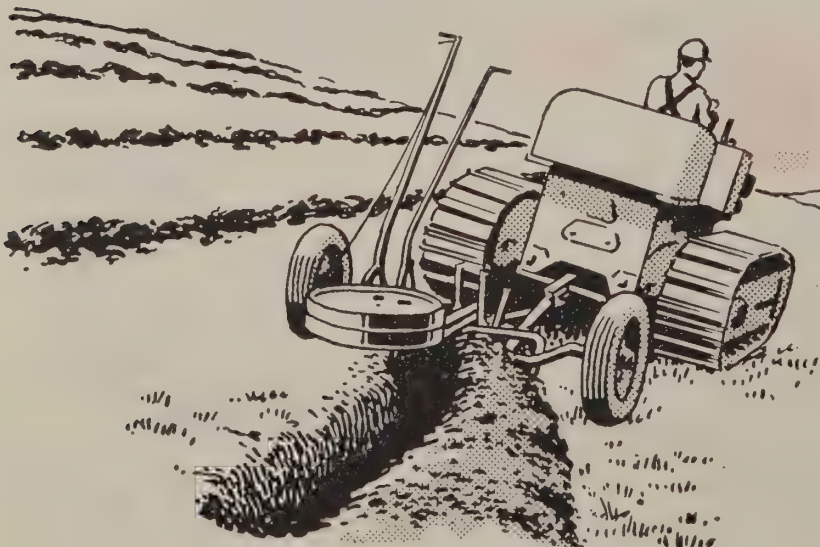
rain runoff with deep contour-furrows. The furrows, cut in slopes of 20 to 30 percent, act as a series of continuous dams to trap the down-rushing water, holding it so that it can soak into the subsoil for plant nourishment. Seeding of grasses and legumes in the bottom of the furrows adds additional plant life.

The furrows are cut as level as possible, following the contour of the slope and are usually about 17 inches wide and from 10 to 14 inches deep. Spacing should be about 10 to 15 feet apart dependent upon the degree of the slope. A special plow is needed to cut the furrows economically as the cut is wide and deep. Many farm-work contractors in hilly areas have rigged up plows for this purpose.

The furrow cutter can be made from a standard two-bottom plow by cutting off the rear beam and bending the front one down to make it cut deeper. Then two sod-breaker bottoms and two mouldboards are welded on. The plow wheels must be adjusted to fit the slope as it is important that the bottom of the furrow be kept level. Heavy weights will be needed to keep the plow to full depth in the ground. It is advisable to pull the cutter

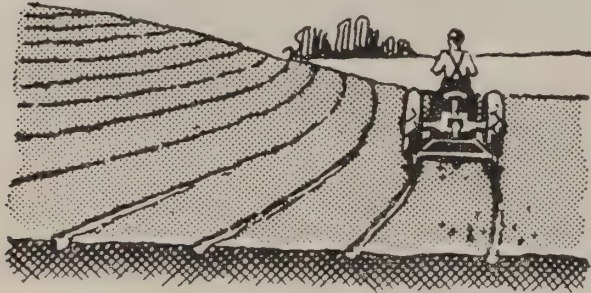
with a crawler type tractor; a wheel tractor is unsafe and lacks sufficient traction.

It is reported that the average cost of furrowing and hand seeding is from \$3 to \$4 per acre. This plan is recommended only where steepness of slope makes regular means impractical.



Pasture Grooving

Pasture grooving is a comparatively new method of retaining moisture on gently sloping ground. Grooves are cuts made in the pasture with a specially rigged plow that forms small ditches to hold



back rain runoff to let the water penetrate the soil. They are cut on the contour to keep the grooves

level. Grooves are 5 inches wide and 6 inches deep, with straight sides. Spacing is 48 inches apart.



Sketch of one of the several ways to build a grooving plow

Two plows are fastened to a bar so that 2 grooves can be cut at one time. Spreader fins are attached to the shares to level the turned-up soil and keep the ground smooth. Excellent increases in grass production have resulted from this operation.

Tree Jetties to Stop River Bank Losses

Tree jetties are obstacles, made up of tree branches and trunks, anchored along the eroding bank of a stream to slow down swirling water, make it drop its silt load and keep it from picking up more.

To build them, uproot trees from other parts of your property and haul to the stream's edge. The trees, protruding into the water are anchored to dead-man anchors along bends or areas where most erosion takes place.



Thickly planted branches stop erosion silt quickly and inexpensively.

After trees and anchors are in place, cover them with dirt to build back part of the bank that has been washed away. After being packed, seed heavily to form a substantial sod. The river will do the rest. A layer of silt will start forming to rebuild the bank almost at once.

On one farm 1500 feet of tree-jetties were constructed. The contract cost was \$1.50 a foot. ACP payments covered half of this cost; this is an approved Soil Conservation Service in many areas.

Reports show that of nearly 4 miles of this type of jetty construction, some over four years old, there have been no failures.

Terracing projects are acceptable to the ASC for partial cost conservation payments. Consult your local conservation office for advice and detailed information.

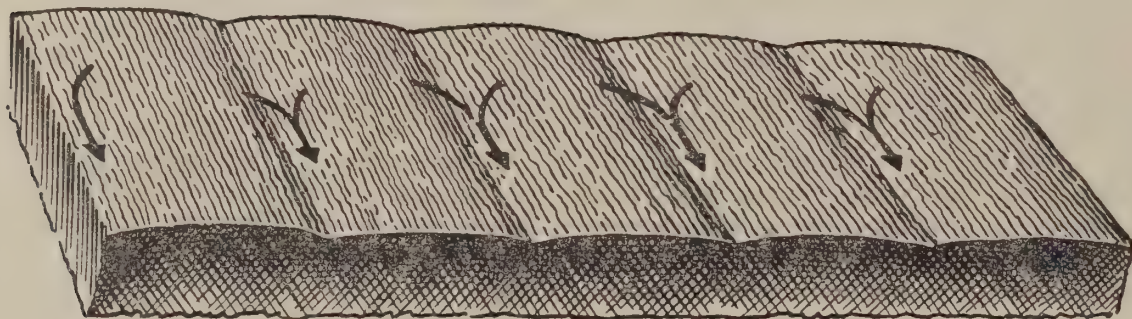
Draining Level Land

**A new method called
"Bedding" that solves
several problems**

POOR DRAINAGE, the bug-aboo of farmers cropping heavy, level soil has been licked in a number of Mid-western areas by a new drainage system called "bedding." Land that once had a lot of wet spots in the spring and after heavy rains is now quickly drained to be worked earlier in the season. Crops are greatly improved.



Drain the low spots with bedding ditches. Arrows (sketch below) show course of water into shallow water runways.



This is the method used. Instead of carving up the fields with deep ditches that drained low spots in one direction or another, a complete system of drainage for each field is laid out with a series of shallow, parallel ditches across each field, at regular intervals of from 15 to 25 rods apart. They all drain toward the lowest end of the field, into open ditches that eventually connect with county drains.

The shallow ditches have such a gradual slope that tillage and harvesting machinery can cross them easily. Crops are seeded right through the ditches.

A gradual crown halfway between each pair of ditches is maintained by plowing the same way each year, so that furrows are al-

ways turned away from the shallow ditches. Building this crown allows gradual leveling and filling in of low spots.

Farmers can get more financial help under the Agricultural Conservation Program (ACP) by putting in the bedding system than by putting in various ditches to drain low spots. ACP pays a greater proportion of the total cost when the job is extended over several years.



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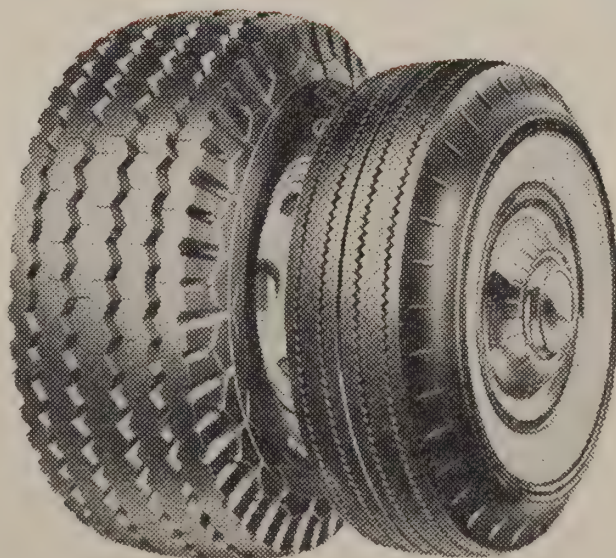
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A Good Pond is a Valuable Asset For Your Farm



Here are some important considerations in the construction and care of a pond.

A WELL BUILT and carefully managed pond is the best water insurance a farmer can have. Owners who have had them for a number of years say that they are the most valuable acres on their property. The USDA reports that thousands of new ponds are being constructed every year, especially in areas where rainfall seems to be getting less or where there are longer dry spells.

A good pond doesn't just happen. It has to be properly built in the best possible location! It takes a big pond, up to 8 or 10 acres, to provide enough water to do much irrigating but the one to three acre size can be a life saver for the stock raiser. A pond can be a mud hole or a beauty spot; it can be an emergency source of water in case of fire; and some farmers even stock them to grow a "crop" of fish for an occasional dinner.

LOCATION. The first step in locating and planning a satisfactory pond is to get expert help. Your SCS office can supply this. Inspect the ponds built on other farms near you. Your Ag College and the USDA have pamphlets which you should study carefully.

Locate your pond so that it does not have too large a watershed draining into it, otherwise a heavy rain can overflow it and break it down. Five acres of crop land is enough for one acre of pond, the ratio for grassed-over pasture land can be 10 to 1. If crop land is used, it should be cropped to stop as much silt runoff as possible. Don't run furrows toward a pond. Silt can fill a pond in 5 or 6 years. On some farms two or three small ponds may work out better than one larger one.

A pond should be built on solid land with minimum seepage. Make

test excavations to see what is under the pond site. If there is a good clay bottom, the pond will hold water. If over a bed of gravel, another location should be found. A deep pond is better than a shallow one. There is less evaporation loss as a smaller surface area is exposed to sun and wind. If no other one exists, the leaky area can be sealed off with bentonite, a very fine clay that makes a water tight surface when used in sufficient quantity. A fiberglass material that comes in 3 by 36 foot rolls is also available. This is laid over smoothed ground and the joints sealed with asphalt, then covered with earth. Cost of this waterproofing is about \$6.00 per 100 square feet.

CONSTRUCTION. The surest way to get a long-lasting pond is to have it built by an experienced contractor who has heavy dirt-moving equipment and the know-how. The job will be done quicker and the actual final cost will be less. Scrape the earth needed for the banks from the inside of the pool to eliminate scarred-up areas around it and the use of good topsoil for construction purposes. Banks should have not less than a 30 degree slope inside the pond and a 45 degree slope on the outside. They should be heavily sodded to stop washing, avoid muddy water and keep down weeds. Have a wide spillway not less than 3 feet

lower than the top of the dam or retainer banks, and give it as long a slope as possible to prevent water gouging and undercutting during a heavy downpour. Spillway should be concrete or riprap faced. Outlet pipe leading to a pump should start in a concrete or masonry filter tank and be kept below the frost line. Heavily sodded lead-in ditches from the drainage areas help keep water clean and prevent ditch erosion.

POND UPKEEP. A new dirt-bottom pond should be fertilized with any standard farm fertilizer once early in the spring at 100 pounds an acre surface of water, and every 2 weeks until water has a greenish cast. To check fertility, extend arm in water to below the elbow. If your hand can still be seen, more fertilizer is needed. Fertilizing also helps control weeds. Keep all livestock out of the pond with a strong fence, for they can quickly make it into a mudhole and contaminate the water, making it unfit for stock-watering use. Inspect your pond regularly, watching for small breaks caused by burrowing animals that could lead to serious washout, and for blocking of outlets by blown-in leaves or animals. Check it for ice damage as early as possible in the spring. Keep the weeds down if water is used for irrigation. Consider plastic pipe for leads to watering tanks or a water reserve cistern near the barn for fire protection. Plastic pipe will not burst if frozen. It can be laid in long stretches between joints, which is a big time saver.



Made
exactly
right.
Always
uniform.
Try them.

Grassed waterways

Water runways to ponds, especially if they have a considerable slope, must be heavily sodded, otherwise the soil washes out and the pond water will become mud-

dy. Any strong rooted grass will do. Keeping it cut to a 4 or 5 inch height gives better water passage-way and helps prevent weeds reaching the seed growth stage.

If the waterway is long and quite steep, break it up with several small retarder dams that will slow down the water. Big rocks, set 6 to 12 inches apart and partially imbedded in the sod, will do this nicely without forming stagnant pools or mudholes.

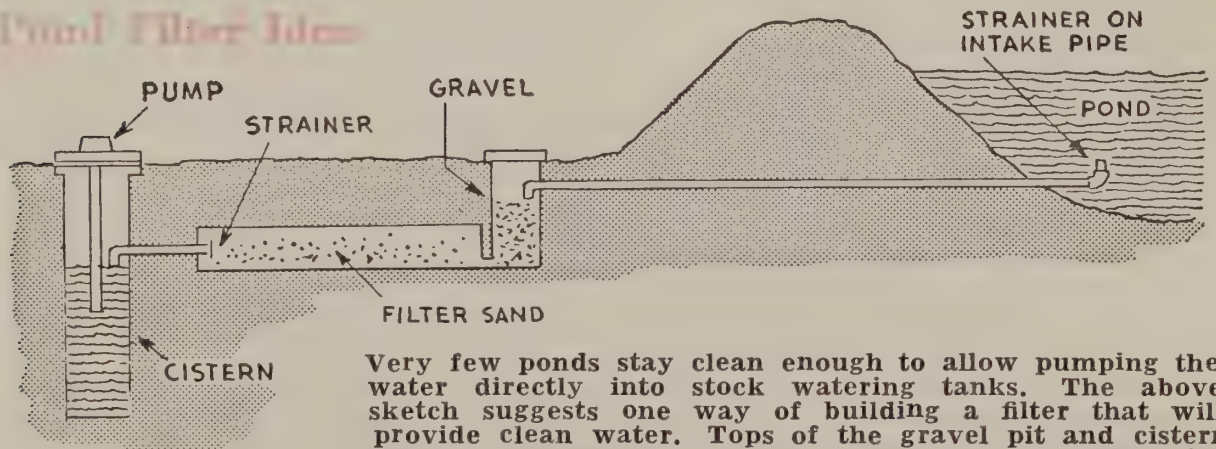
Even if you do not have a pond, all waterways should be grassed as much as possible to slow down runoff and permit the ground to soak up its limit in moisture.

Water savers

Minimum tillage is an important water saver. Every time you work the soil you expose more of it to the air and evaporation. Double up on operations whenever possible and keep seedbed preparation to a minimum.

Weeds are always thirsty and absorb tremendous amounts of water from the soil—water that your crops need. Killing weeds saves subsoil moisture.

Winds cause as much water evaporation as sunshine. Well planted and cared for windbreaks pay an extra dividend in moisture conservation.



Very few ponds stay clean enough to allow pumping the water directly into stock watering tanks. The above sketch suggests one way of building a filter that will provide clean water. Tops of the gravel pit and cistern should be protected against surface water. Provision should also be made for washing or replacement of gravel if it should become clogged with silt. Keep intake end of pipe some distance away from shore of pond.

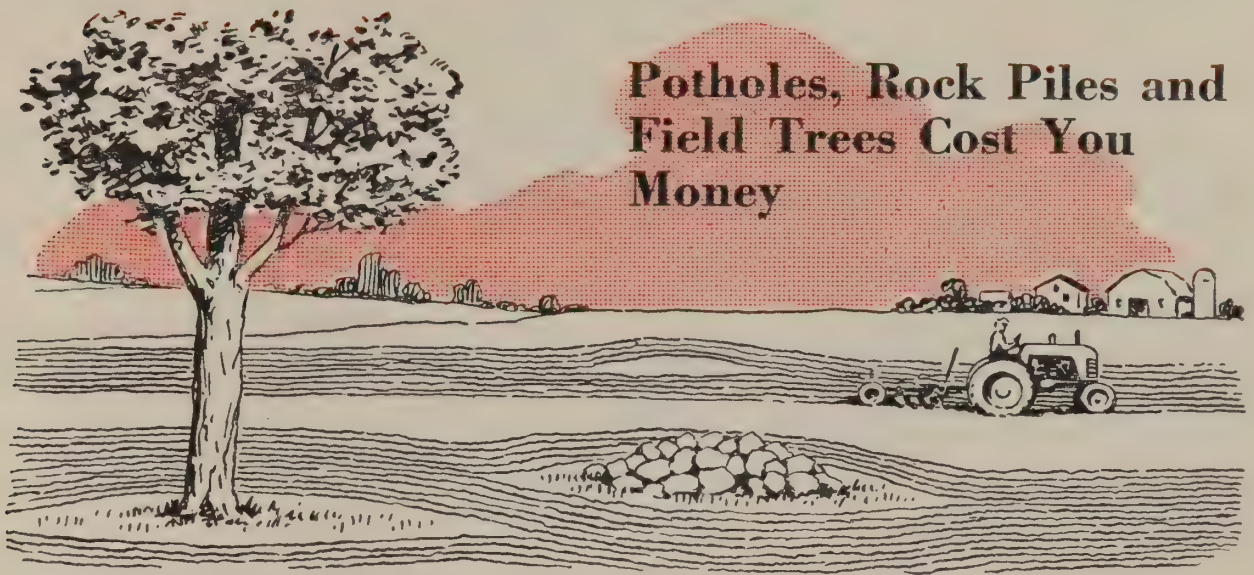
Erosion Damages Are Costing You Big Money

Top soil of American farms is being washed out to sea over vast portions of the country. Heavy rains that cause a vast network of washouts and local floods are pouring millions of tons of good growing soil into fast moving rivers where it is lost forever. Conservationists can only estimate the loss but many say it tops a billion dollars in a wet year.

The only apparent cure is greater effort to control washoff in the thousands of small watershed

areas that exist in nearly every county in every farming district. This means that each farmer must first protect his own land in every way possible, and then join with his neighbors to make it a community project. All must work closely with federal conservation departments in their own district to achieve satisfactory results.

Check your land to see if you are taking advantage of modern methods to insure your farm for a good future.



Potholes, Rock Piles and Field Trees Cost You Money

LAND THAT IS bumpy, with frequent potholes, makes the farming job tougher. The low spots may be only a few inches deep, but they hold water, waste seed, and kill out alfalfa and cover crops. Land leveling is the answer to such a condition, and in most cases a single season's crop increase will pay for the cost of leveling. Deep holes may need filling with the dirt scraped off of high spots, but most of the job can be done with a land leveller. The leveller is a big machine, 30 to 40 feet long, that does wonders with a rough field. It works best over loosened soil and does not require a powerful tractor to handle; a two-plow job will do it except on very hard ground. Levellers can usually be rented for around \$6.00 a day, a small cost

in comparison to the results that can be achieved.

Piles of stones and trees in a field don't seem too much of a hindrance to plowing and planting, but they cause just enough waste of crop space and time to cost a lot more than disposing of them. Total farm efficiency requires the smoothest possible land with the least number of obstructions, and a few dollars spent in the right places means more profits for many years to come.

Clearing a field is much easier to-day than in the past. The hydraulically operated scoop or fork attachment for your tractor will dig up big heavy rocks and load them onto a trailer without much effort on your part and will cover a lot of ground in a day.

Level land saves machine time
and helps control rainfall.





Weeds

are putting wings
on your dollars

You CAN stop it

IT IS ESTIMATED that weeds are costing American farmers more money than all of the droughts, floods and adverse weather conditions put together. The owner of an average size farm can expect a \$450.00 loss at the start of the year and charge it to weeds, and in some cases a lot more.

Weeds consume vast quantities of soil nutriment and moisture. They can smother crops enough to greatly reduce production and the presence of their seeds lowers the sale price of grains. Farm animals are poisoned by weeds. They choke up irrigation and drainage ditches, and nowhere are they useful or desirable.

Weeds kill easiest when they are in the germinating or "white seedling" stage. In row crops, this means a big share of the weed kill can be made before a cultivator goes into the field. Rotary hoes, harrows, weeders, and herbicide sprays now are taking a high toll of weeds ahead of the cultivator on many farms.

The early weed kill means fewer cultivations and far fewer inner-row weeds left after lay-by time. Weeds left in the row can cut yields, particularly if moisture supply is short.

Weed killing sprays, applied at planting time, are another good

means of getting the small weeds early, especially those in the row. Applied before the plants emerge, the sprays eliminate the need for hoeing or harrowing before cultivation. A very valuable aspect of the sprays is that they insure the early weed kill in seasons too wet for early cultivation.

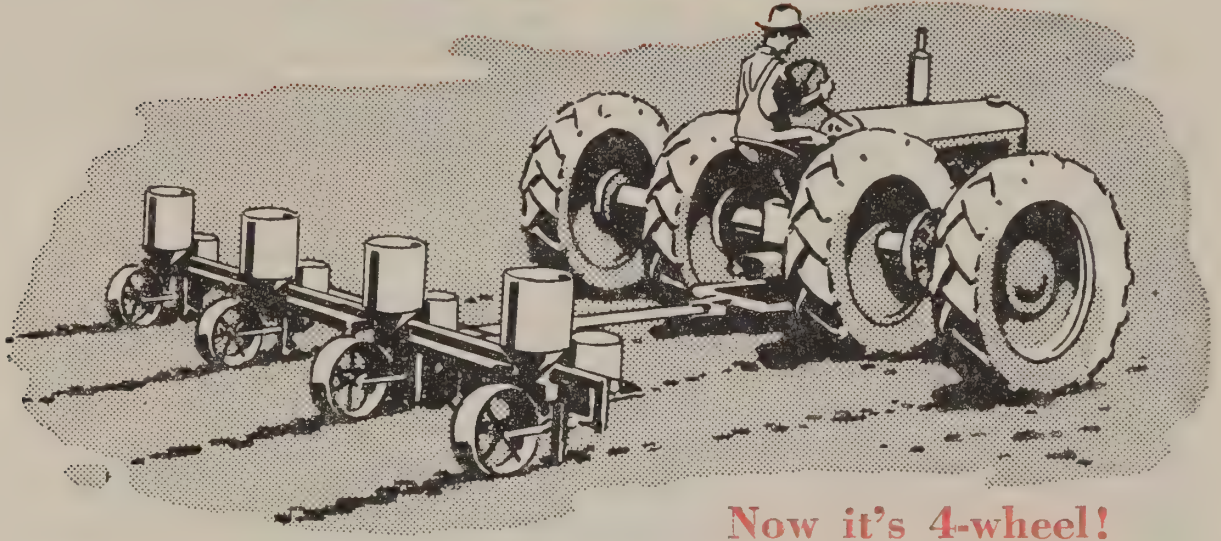
2,4-D, applied as a spray, is highly effective on broad-leaved weeds when applied in the right proportions. It has proved safe to use on forage crops and not harmful to animals.

Randex, Amino Triazole and other new weed killers will destroy grassy weeds. Progress in controlling grassy weeds has not been as rapid as it has for broad-leaf weeds, but new chemicals are appearing frequently and one of them may prove to be fully effective.

Keeping weed-infested areas along driveways, fence lines, and unused areas closely mowed is a big help in preventing seed growth and spreading.

Weed control is an investment in greater production and less field work. In many cases the extra yield will return four dollars for every one invested for chemicals. If no control is attempted, both size and quality of production will drop and land value will decline.

Tractor-Track Planting



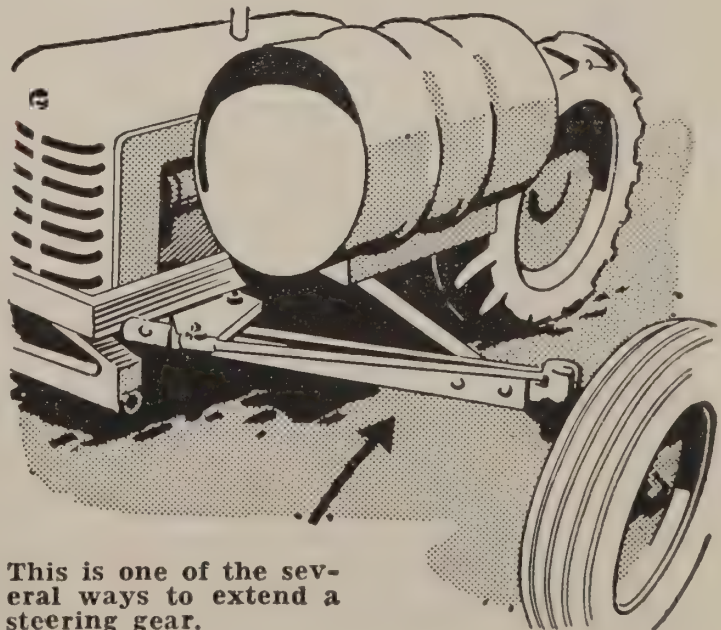
Now it's 4-wheel!

THE STILL NEW minimum-cultivation method of planting corn in the pressed-down path of a tractor's wheels immediately after plowing has proved so successful that a number of Midwest farmers devised and built equipment that will plant 4 rows at a time, making still greater savings in labor, time and fuel costs. Two methods have been used to make the 4 tracks.

The most practical type has an extra wheel with spacer assembly bolted to each of the tractor wheels. This leaves tracks with approximately 40-45-40 inch spacing. (See above picture.) Another method is to use an extension frame on the front of the tractor to space the front wheels about 10 ft. apart. Steering mechanism also has to be extended to fit. (See below.)

Nitrogen and 2-4D too!

Fertilizer and weed killer can also be applied at the time of planting from tanks mounted on the tractor. P.T.O. pumps spray the mixtures behind the packer wheel of the planter.



This is one of the several ways to extend a steering gear.

For peak performance and long equipment life use Sinclair products—and Sinclair's Free Lubrication Guide Service.

Advantages of track planting of corn

Basically wheel-track planting consists of planting corn on freshly plowed ground without discing or harrowing. The planter is hitched to the tractor so that the corn is planted in the middle of the pressed down tracks of the tractor wheels. Soil between the tracks remains rough and loose to absorb moisture faster. Soil compaction is reduced which slows weed-seed germination. This eliminates the first, and often the second, cultivation. Two to four trips over the field are eliminated, reducing equipment wear, fuel costs and many man-hours. Savings are estimated to be at least \$5 per acre. And in

nearly every case the stands have been better, emergence quicker and crops larger. The corn comes up before the weeds get a chance to crowd it out. Beating weather troubles is also another advantage when planting follows plowing in the same day as an overnight storm causes no wet field delay.

Soybeans, too

Experimental plantings show that tractor-track planting works well on soybeans. Two and sometimes three operations of seedbed preparation were saved. The crop was as large as when regular seedbed and cultivation methods were used, and was more free from weeds even without a weed-killer.

Now Haying Practices

New machinery and methods are helping farmers protect their most valuable crop, forage, from the weather. Three practices, hay crushing, mow drying, and grass silage are changing old-fashioned forage harvesting operations. All of them beat the rain which often falls during haying season.

Hay crushing cuts drying time up to 50%. The crusher smashes stems and lets them dry faster, but does not damage leaves. Quality of hay is improved, it is claimed, by the crushing operation.

Mow drying is growing in popularity. Hay can be brought to the mow too tough or damp to store in the ordinary way and spread over a mow drying system. Either heated or natural air is blown through the hay to complete drying.

The hay crusher teamed with a mow drying system makes an effective combination for combating wet haying weather.

The wilting method for grass silage has a growing list of supporters. The hay is allowed to wilt to about 70% moisture before it is ensiled. When silage must be put in wetter than 70% to beat rain most farmers add a preservative.

Hay choppers and balers have been greatly improved in recent years. Hay chopping shows some advantages over baling. First, it takes less labor to run a chopper. Second, forage harvesters reduce hand labor, but bales generally have to be handled by hand two to four times even with elevators and grapple forks. The forage harvester is also a multiple-use machine.

Farmers who expect to sell their crop should bale it. Bales are also desirable where feed must be hauled to feedlots. Baled hay takes less storage space per ton than chopped hay.

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Suggested Schedule For a
3-Year Farm Improvement Plan

Everyone thinks about changes and improvements they would like to make in the future. One of the best ways to get started is to write down the major ones and set dates for the time you intend to begin each. Then you can pick out those that should be done first and make a work schedule. Modernization usually requires more time than can be allowed in a single year, so this rough outline of a three-year plan is suggested.

- | | |
|--------------------------|-----------------------------|
| 1 —Contouring | 12 —Feed storage and bunks |
| 2 —Terracing | 13 —Milk house |
| 3 —Leveling | 14 —Wood lot or wind breaks |
| 4 —Spreader ditches | 15 —New machines |
| 5 —Drainage ditches | 16 —Auto or truck |
| 6 —Repair or move fences | 17 —Pond |
| 7 —Remodel barn | 18 —_____ |
| 8 —Move yard buildings | 19 —_____ |
| 9 —House improvements | 20 —_____ |
| 10 —Paint | 21 —_____ |
| 11 —Water system | 22 —_____ |

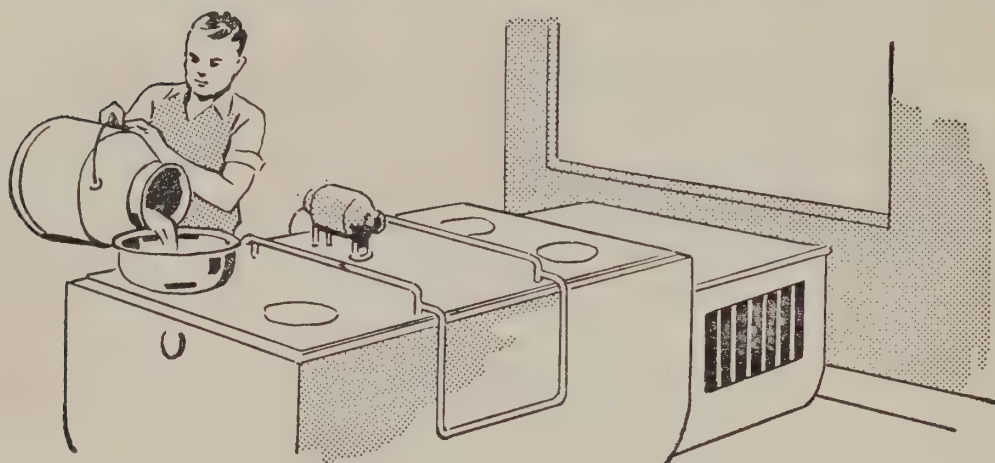
NOTE—Write down special projects needed on your farm in the blank spaces above.

(See next page.) Compare the number of the project as shown on above list in the left-hand column. Write down the part of it you plan to do during the first, second or third year in the other columns. **EXAMPLE**—No. 1 Contouring. You may have several fields that should be contoured, too many to be done in one year. Select one for the first year and write the description of the field in the column headed "1st Year," then, the fields to be contoured during the 2nd and 3rd years. Do the same with the other projects. If you make a map and number your fields, it will be easier to describe them. For an item like paint (10), write down—House for 1st year, Barn for 2nd and House (second coat) for 3rd. After you have scheduled all of your improvement plans, check to see if some will interfere with others. Then you can juggle them around to be practical and possible.

↓ OPERATION TO BE DONE (See opposite page)

	1st Year	2nd Year	3rd Year
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
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Bulk Milk Handling Is Making Big Changes In Dairying



THE SWITCH to bulk milk cooling tanks is progressing steadily. Grade A milk can be produced with a bulk setup and with the labor savings that can be accomplished, it is quite certain that bulk operation will continue to grow.

Farmers producing less than 600 pounds of milk a day should consider all the costs and work involved before switching to bulk; usually the larger producers benefit most from bulk handling. However, in some cases, the small farmer's main reason for making the change is to keep a market, because many creameries converting from can to tank handling are doing so exclusively, eliminating all can receipts.

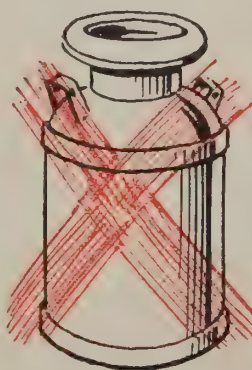
The bulk system includes a refrigerated bulk milk tank installed in a milkhouse on each farm. Scheduled pickups are made by a refrigerated bulk tank which siphons the milk out of the farm tank and delivers it to the plant where it is siphoned directly into the plant's holding tanks. It is the closest to a completely clean system of handling from cow to creamery that has been devised. Milk cans become obsolete.

Two types of cooling mechanisms

Bulk milk tanks are of two main types—ice bank tanks and direct expansion tanks. In ice bank tanks, refrigerating coils freeze a bank of ice which keeps cooling water near 32 degrees. Cold water sprays against the sides of the tank. Direct expansion tanks have no ice bank. Instead, refrigerating coils are installed tight against the tank wall and milk is cooled as it contacts cold wall.

What bulk handling means to the farmer

With a bulk cooler, you can store one to two days' output of milk in your milkhouse at controlled temperatures, summer or winter. Instead of washing a dozen or



WILL THIS

join the 3 legged stool, the old lantern, and the big cream skimming pans of dairying in grandpa's time?

more milk cans and lifting them in and out of a cooler, you simply pour the fresh milk into the cooler and never handle it again. And you have only the cooler to wash and clean.

You can use a bulk cooler without a milking parlor and pipelines, although these also save time and labor.

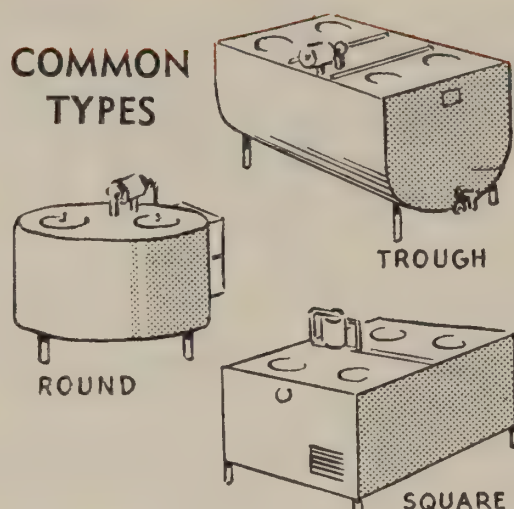
Bulk milk usually brings a premium price because it arrives at the creamery fresher and cleaner. Bulk handling is, however, no substitute for sanitation. Standards of cleanliness will be even more rigid than with the can system. A farmer can lose a whole tankful of milk—perhaps two days' output—by being lax or careless.

Some of the requirements of a change-over

The size tank to buy depends upon the truck pickup service. If daily, you will need a tank large enough for three milkings in your peak period. If you are on an every-other-day route, you will need a five-milkings capacity. It is always wise to get a little larger tank than seems immediately necessary; you may add a few more cows some time in the future.

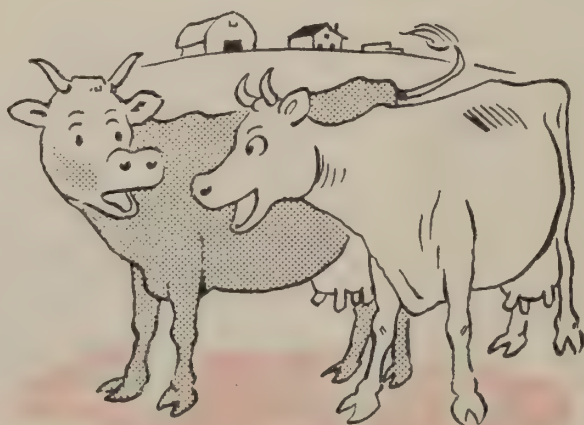
Your milkhouse must be on an all-weather road with ample room for handling the truck. The size and shape of tank you buy will depend somewhat on the size of your milkhouse to provide at least two feet clearance all around the tank. If your present building is too small, add to it or rebuild. The door should be wide enough to move in your new equipment. The floor must be strong and solid and the tank must be in perfect level with its original calibration or the milk weight will be incorrect. Some manufacturers recommend concrete footings for the legs of

COMMON TYPES

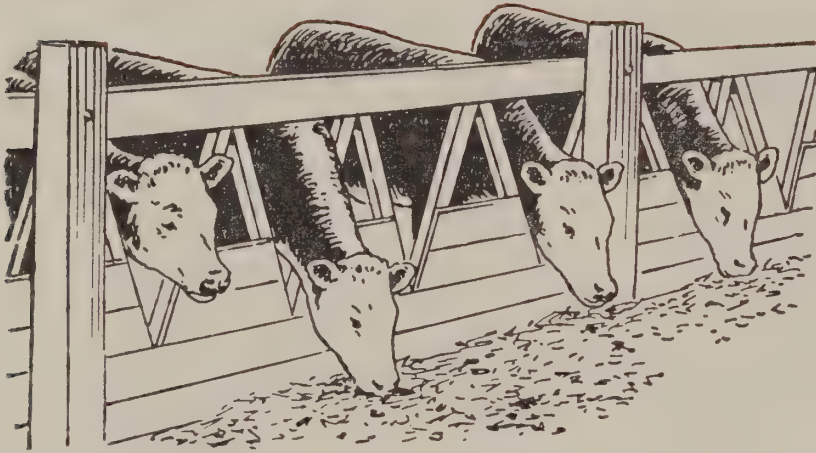


the tank with the rest of the floor sloping to a drainage outlet for easier flushing with a hose. Of course all can cooler-racks and can-washing equipment can be removed.

Check your electric wiring all the way back to the main switch box to see that it is heavy enough to carry the greater power load, and that lights and extra outlets are properly insulated. A power failure due to faulty wiring could cause you a lot of trouble and expense.



"Let's quit—next thing you know we'll have to bring in our milk in a pail."



"V" openings keep heads down to prevent hay throwing.

Fence Line Bunks

Big time-savers
if properly
built and used

THE FARMER with a good-sized herd of cattle can save a lot of time with fence-line mangers or feed bunks. They make feed handling a straight-line operation, saving time and conserving feed. With a truck or trailer, silage, green chop, baled or long hay and mixed feed can be evenly distributed when and where it is needed with the fewest possible motions. A self-unloader can be used, or the bunk can be hand filled from a side-opening wagon. Cattle are kept out of the driveway by the fence and no feed is wasted by being trampled on. A good roadway facing the fence should be a part of the construction.

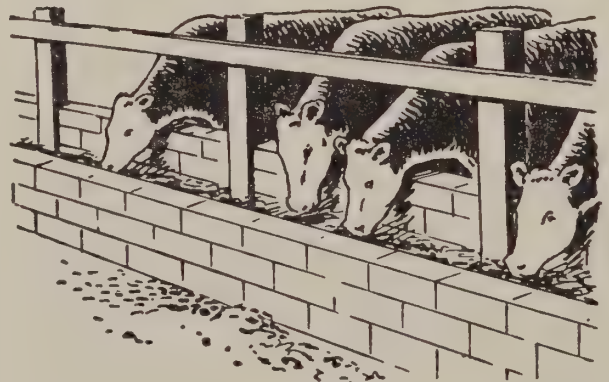
The design of the fence and the bunk depends upon the kind of feed used, kind of cattle and weather conditions in your area.

For baled or loose-hay feeding all that is needed is a substantial fence with V-shaped openings or pipe separators to keep the animals in place.

In dry areas a season's supply of baled hay can be stored directly in front of the fence just out of the cow's reach. Loose hay can be fed from the ground by piling against the fence from a trailer.

Chopped feeds require a bunk, preferably with a high enough

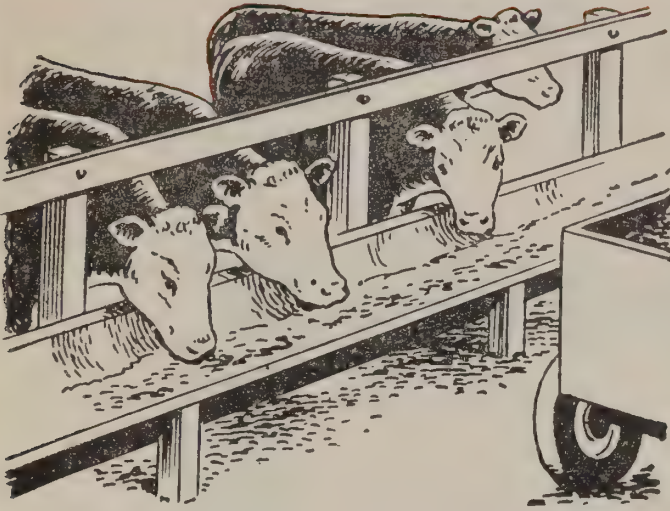
back board to prevent throwing of the feed by the cattle. Bunks can be made of lumber, concrete blocks



Concrete blocks set between and anchored to treated posts. Bunk should not be over 3 feet wide.



2" pipe separators on 24" centers mounted in concrete curb keep cows from crowding or getting into manger.



36" galvanized steel, curved to make 15" deep trough, is a popular type for chopped feed. Bolt to treated-wood frame, keep bottom of trough 6" above ground.

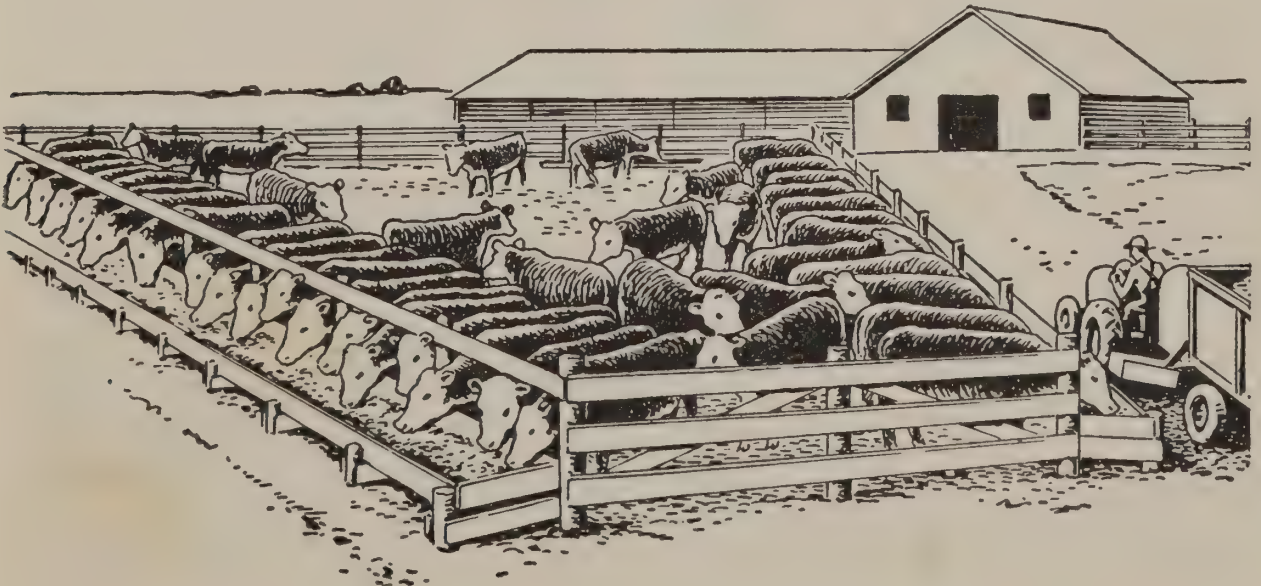
or with sheet metal troughs mounted on posts and stringers. Bunks with tight bottoms should slope to openings so that rain water will run out, or so that they can be washed out with a hose.

The fence-line should be built on high ground to provide fast rain run-off. Being fixed in place there will be a concentration of manure, and in wet weather the area will become a mud hole unless paved. Pawing of animals will also cause holes unless there is a substantial surfacing. If paved, it can be easily cleaned with a tractor-mounted scraper.

Triangle Feed Lot Plan Saves Work

A MODIFICATION of the line-fence feed bunk idea is this triangle-shaped enclosed lot for cattle feeding. Mangers are outside the fence where they are easy to fill from a truck or trailer. Distributing the feed is simply a circuit trip around the lot from the storage barn at the back of the

lot. A wide gate at the point of the lot allows easy moving of the cattle to and from a resting area. This compact arrangement also cuts cleaning time, shortens the travel distance of feed hauling and saves both land space and construction costs.



Animal Health



Prevention is better than cure . . . but if you see signs of trouble call your Veterinarian as quickly as possible.

YOU CAN DISCOVER and start treatments on most kinds of animal sicknesses before they become dangerously serious. Some, however, appear with little or no warning and require prompt care and attention until you can get your Veterinarian on your farm to help you.

ACCIDENTS. Animals are always subject to cuts from barbed wire, kicks from other animals, bad falls, or sudden contacts with farm machinery. They may bleed badly unless cared for promptly, open cuts and sores can become infected quickly. Broken bones above the knees are generally considered incurable in mature animals and all that can be done until the Vet comes is to make the animal as comfortable as possible, or if the break is in the pelvis or backbone, to put the animal out of its misery.

CONTROL OF BLEEDING. Blood can come from either veins or arteries. That from arteries comes in spurts corresponding to beats of the heart, while blood

from veins is darker-colored and flows steadily. Stop heavy bleeding by locating the cut vessel and tying it off with a strong thread. A pair of forceps or even ordinary pliers can be used to close the cut end of a vessel in an emergency. If the cut is deep and the source of bleeding can't be readily located, apply a tourniquet. Use a split inner tube, small rope or cloth. Tie or twist it around a leg to cut off the circulation of blood. If an artery is bleeding, tie above the wound, for arterial blood comes directly from the heart. Bleeding from a vein calls for tying the tourniquet below a wound, since venous blood is returning to the heart. A tourniquet must be loosened for a few minutes every hour, otherwise a complete lack of blood may cause gangrene.

Minor bleeding can often be stopped by packing the wound with sterile cotton or gauze and then pressing it down firmly with the fingers. The use of flour, cobwebs, and similar material is not recommended since dangerous infection may easily result.

Stop the bleeding and clean the wound to prevent infection. Clean with sterile dry cotton and treat with iodine or mercuriochrome. Water retards healing so its use is generally undesirable. Hydrogen of peroxide is very good for deep cuts, since its foaming action carries out particles of dirt that might otherwise be sealed in and cause pus formation.

Whenever possible, bandage wounds lightly for protection against dirt that may cause infection.

In hot weather swab the wounds with something that will repel flies.

Keep animals quiet, and give some food and water.

Caution—Do not throw turpentine in a fresh cut; this prevents the blood from clotting, and causes more harm than good. Keep in mind that animals on sweet clover bleed very easily.

POISONING. A form of chemical poisoning common to all domestic animals results from the ingestion of lead or lead products.

In acute cases give the animal one pound of Epsom salts in a pint of linseed or castor oil and follow it with large doses of barley water, bismuth subnitrate, or kaolin. If the animal is in a stupor or coma allow it to inhale large doses of spirits of ammonia.

Prevent poisoning by observing these common-sense rules—

Don't store fertilizers where animals can reach them.

Don't leave empty fertilizer bags along fences.

Don't dump surplus sprays in barnyards or cattle lots.

Don't throw paint pails into pastures or use them for feeding and watering animals.

Don't feed treated seed.

Don't put mercury compounds on the skin of cattle.

Don't use poisonous medicines carelessly.

Don't fail to follow directions for mixing sprays and dips.

Don't pasture on ground recently sprayed or near sprayed orchards, cabbage fields, etc.

Don't leave rodent poisons around barns or cattle sheds.

Bloat is caused by choke, overeating, or change in diet. Consuming spoiled food, damaged roughage, frozen roots, or wet grass may also cause bloat. It frequently occurs when the animals are first put out on fresh clover or alfalfa pasture.

The symptoms are those of acute distress. The swelling over the left flank is characteristic. The animal breathes with difficulty, moves uneasily, and is in obvious pain. There is no rumination. Unless the bloat is relieved, the animal may go into a coma and eventually die of suffocation. Death results from the pressure of gas on the heart and lungs, or from the absorption of poisonous gases.

Try the following emergency treatments while waiting for your vet—

Gag the animal with a pine tar or grease coated rope, tied around the horns or neck. Efforts to dislodge it generally releases excess gas.

Walk the animal slowly up and down a hill.

Massage the left flank for 15 to 30 minutes.

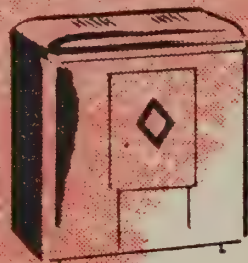
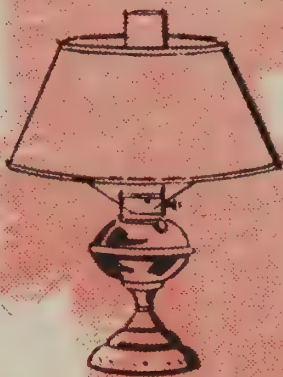
Stand the animal on a platform or slope with front quarters elevated well above the rear end.

Hose the sides of the animal with cold water—use a pail if hose is not available.

Withhold food and water and drench with one gallon of mineral oil or two pounds of Epsom salts dissolved in 5 gallons of warm water.

Ask your vet for instructions for using new drugs now available and keep a supply on hand.

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Poultry Goes BIG

Broiler and egg production becomes big business with new methods and ideas

The poultry business is following industry and retailing into the "super" classification. Scientific knowledge and system are replacing guesswork and haphazard methods. Higher living standards, increasing population and publicity have made tremendous new markets. There are big opportunities in poultry raising and management . . . **BUT ONLY IF YOU LIKE CHICKENS AND LIKE TO WORK WITH THEM.**

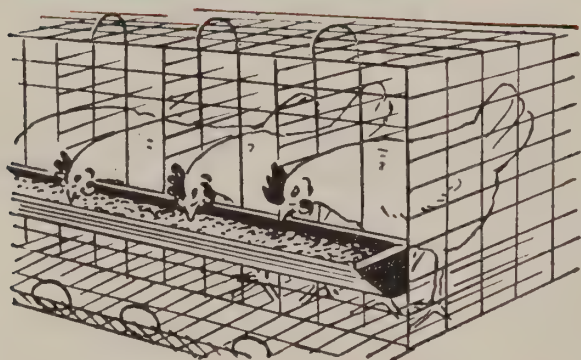
Family size flocks

IN SPITE of the trend to big poultry operations, there is still room for the smaller family-size flock. "Raise either 2 or 3 dozen hens for the family egg supply", the experts say, "or keep at least 500 layers if you want to make any money". It takes as much time to care for 150 as it does 500 and with the larger number you can afford to install some time and labor saving equipment. 500 layers will give you enough eggs to make better deals with local stores, or to run a steady roadside sales business, or house-to-house route.

Egg quality is most important. Only Grade A eggs bring premium prices. Investigate every angle of your local markets before you start on larger scale production and make your plans accordingly. Don't neglect the market for broilers and older hens either, because a profitable egg business means frequent culling of non-layers and replacements. It does not pay to board non-producers.

Large scale production

Poultry and egg farming on a big scale with 3000 to 5000 birds is a full-time business by itself and requires special buildings for the flocks and feed supplies. Big barns can sometimes be remodeled but it is usually less expensive to build new flock housing, to get efficient arrangement and proper ventilation. In several cases flock owners have leased vacant warehouse and store buildings in nearby villages for cage operations. One of the best types of buildings is a long concrete block building without windows or center supports. In cold areas the hollow blocks should be filled with an insulation material, put in as the walls are laid up, which eliminates the heating problem. Closely crowded birds will give off enough heat to keep the temperature above the danger mark. Block construction is fire-proof and can easily be made damp proof and will never rot.



Caged Layers vs Loose Flocks

Comparison of housing, labor and feed costs and other factors

BOTH the cage and floor plans of egg production have their advantages and disadvantages. Either will produce high-quality low-cost eggs if properly set up and well managed. Both can fail if important details are overlooked or neglected.

Caged layers

Keeping layers in individual cages has proved highly efficient for major operations with 2 to 5 thousand birds, and reports are increasing on many successes with as few as 400 hens when used as a sideline with dairy or general farming.

The advantages of the cage method are more eggs per bird, less feed per dozen eggs and less labor per bird. Normally the eggs are cleaner and easier to gather. Exact laying records are easily kept and the non-producers can thus be culled sooner to save feed. Mortality runs lower. Cannibalism is eliminated and there is practically no egg eating.

Replacement of culls can be done at once to maintain continuous production. The raising of needed pullets is spread throughout the year, saving equipment and the

financing of a large flock of pullets until they start laying.

Eggs should be gathered 3 times a day, and droppings boards cleaned at least every 2 weeks.

Caging requires a well insulated building, free of drafts and carefully ventilated. Windows are unnecessary as electric lighting is arranged for a 13 to 14 hour day. Cages can be double decked to save floor space, and set in double rows with automatic water and feed troughs between them.

Costs vary according to building requirements. About \$5 per cage is the average for complete equipment including an egg cooling room when an old building can be converted. A good new building and equipment will run about \$7 per cage. Experiment stations report egg production costs, including labor, from 35 to 40 cents per dozen or about 19 dozen eggs per 100 pounds of feed. Most experienced operators say that a minimum of 1000 birds are necessary to get full efficiency from cage housing.

Loose flocks

The floor plan has its advantages also. Starting costs are less. Approximately \$4 a bird will equip a fully modernized building with

automatic feeders and waterers, an efficient ventilating system, walk-in egg cooler and an easy egg gathering arrangement. A modern house keeps the birds on a raised wire mesh or wood slat floor which can be removed in sections for cleaning by power equipment. Cleaning is reduced to a once-a-year job.

There are no dampness or litter problems. Laying nests are arranged so that the eggs roll into convenient gathering troughs and are kept clean. Smaller flocks can be maintained efficiently, but large operators find that one man can adequately care for a flock of 4,000 to 5,000 in a 9 hour day. This includes egg gathering and packing. At cleaning time, however, extra help is needed for a few days. Free birds usually require about 10% more feed and culling is much less accurate.

Wood Lath Floor



A SLATTED floor for poultry houses can be made with wood strips built into sections about 3 by 4 feet and set on stringers 12 to 18 inches above the floor or ground. This eliminates both litter and roosts. Smooth wood strips, $\frac{1}{4}$ " x $1\frac{1}{4}$ ", set on edge, are spaced $\frac{3}{4}$ " apart. Long rods, threaded for nuts on both ends, act as bolts for making up sections. The wood is oiled for easier cleaning.

New Method of Preparing Broilers



ANOTHER NEW IDEA is coming into the broiler business. Broiler producers were agriculture's first to streamline production methods, and now with an antibiotic treatment, Georgia producers have found a way to keep the meat fresh twice as long as was possible before.

The treatment is simple but so exacting that it can now only be done under rigid supervision. A tiny amount of the antibiotic, known under the trade names of "Acronize" and "Biostat", is mixed with ice water in the cooling tank. The proportion is only 1 part of the chemical to 100,000 of water, so small that a daily diet of two pounds of the raw meat for 17 years would supply only one therapeutic dose. Cooking completely destroys it.

The method has allowed the few producers using it, mostly in Georgia, to ship their broilers all over the country and into export. It is not a cure-all for improper handling or inadequate refrigeration, but it does provide a longer shipping and storage period between producer and consumer.

Farming IS a Business

Farmers must make records, "keep books" and protect their property

THE BUSINESS OF FARMING is much like that of a factory that makes a variety of products and sells them on an open market. Keeping the business going year after year and making it more profitable requires constant planning and close study of each operation to find better ways of doing things to increase production and to cut costs.

The law of supply and demand sets the prices your farm products will bring just as it does for all industry. To make more profit from farming you must find ways to make each acre produce more, or perhaps cut labor costs, change some of your operations, add equipment or make improvements to utilize more modern methods. You can't get the right answers by guessing. It takes complete records that you can study and analyze to find mistakes and make the right decisions. Just a few school notebooks are all you need to keep your records.

Property record

Make an inventory of your property and its approximate worth. This will be very valuable in case of fire, your death (to settle your estate) or in case you should sell or trade. As you make improvements over the years it makes a satisfying record of progress.

Also helpful in obtaining credit or mortgage loans if they should ever be needed. Put down improvements and their cost as you make them. Divide your inventory as follows—

Land—Acres in crops, pasture,

woodlots, orchards, building areas, etc. Include permanent improvements such as roads, large drainage ditches, terracing, water systems, ponds, fences, etc.

Farm Buildings—Barns, silos, milk house, storage buildings, poultry houses, etc. Include special built-in equipment.

Home Building. List furnishings separately.

Machinery—All movable equipment except automobiles.

Automobiles.

Supplies—Stored crops, fertilizers, feeds. This will vary during the year. List an average for frequently replaced supplies. Crops



Any judge will tell

you that any farmer who keeps his affairs in a business-like manner stands a far better chance of getting a fair deal than one who is careless and operates on guesswork.

warehoused under loan should be listed separately.

Farm Shop. Tools, equipment and supplies.

Personal Belongings—A record for use in case of fire.

Clothing and jewelry. Boats, fishing and hunting equipment.

Cameras, books and other valuable items.

Bonds, stocks, policies and contracts kept at home.

Make a map of your property. Draw in fence lines and give each field a separate number. This will assist in keeping crop records and for planning crop rotations, erosion control projects and other improvements.

Income and expenses

Keep an accurate record of all the money you receive and pay out in your farm operation as required for income tax purposes. Don't rely on just throwing bills and notes into a box to sort out at tax figuring time . . . you may miss the opportunity to make money-saving deductions.

Keep farm and non-farm income and expense records separate. Hold all receipted bills and records of sales for at least 3 years.

Crop records

Complete records will show how well you are using your land, if you are planting the proper crops, the right varieties and handling them correctly. The actual cost and value of a crop is the only answer.

Your record should show . . .

Number or description of fields and acres. Kind and variety of crop. Date and how planted.

Number of man hours and machine hours for seedbed preparation, seeding, cultivations and harvesting.

Quantity and cost of seed.

Quantity, kind and cost of fertilizers and sprays.

Cost of water purchased for irrigation.

Total machinery cost for all operations (total hours at local custom rates per hour).

Labor cost (farmer doing his own work should record average local per-hour rate).

Overhead cost per acre (see note at bottom of page).

Price received if sold for cash, or if used as feed what it would have cost at market prices.

Livestock records

If you are in the dairy business you know that you cannot afford to carry boarders. The only way to find them is to keep individual records of each cow's production. Most dairymen are now doing this. Feed records are equally important, for only by keeping careful records can you find the right amounts and combinations to maintain milk production at top levels. You may think that you are feeding the best way, but a study of your records and a little experimentation might bring you greater feed returns or reduce your feed costs.

Man-hour records of time required to feed, milk and care for a dairy herd may show you need better arrangements of feeding areas, less transportation or handling of feed from storage to cow, different watering facilities or other changes in operation to increase profits. The same things are true

OVERHEAD. Your cost of doing business includes interest on investment, rent, upkeep and replacement of buildings and equipment, management salary, insurance, taxes and similar fixed expenses. Figure 10% for a completely modernized farm or 12% for a partially mechanized farm. Example—if a bushel of corn costs 70 cents in labor and materials to raise and store on a fully mechanized farm, add 10% to get the actual cost which would be 77 cents.

Farming IS a Business—Continued

in milk handling. You need facts to get correct answers and the only place to get them is from careful records made on your farm, under your conditions.

Similar records can be equally useful for large-scale beef, swine and sheep raisers. Egg, poultry and turkey raisers also must know costs of production to check their methods. It is very easy to follow inefficient routines from habit without realizing that a few changes might save time or cut costs.

Insurance protection

The normal hazards of farming and farm living demand an adequate insurance program. Be sure to have enough and the right kinds. Before you renew old policies or buy new ones investigate the all-purpose "comprehensive" policies for farmers now being offered by some companies. By combining all hazards into one policy a considerable saving in premiums can be made. Check your coverage on the following types of protection

Fire. Do you have enough to replace buildings, equipment and home furnishings if burned out?

Hail and windstorm. Could produce losses equal to a fire.

Liability. You can be held legally responsible for injuries suffered by employees and people other than your family resulting from accidents on your farm or caused by your machines or equipment when off the farm.

Personal injury. Have enough to at least pay your medical expenses if you are hurt. Check this type coverage thoroughly and read the policy carefully.

Life. Protect your family in case of your death with sufficient insurance for them to carry on. The greater your debts the more insurance you need. Later, when your

needs are less, and your children are grown, you can convert, or reduce your insurance and lower the premium payments. A good insurance policy is a sound investment—you don't have to die to get the benefits.

If you have growing children, a term endowment policy for each one will provide money for their education at the time they need it. Such policies are low in cost if started when the child is young and there is no better way to assure them of an education. Insurance companies have many different plans—compare them.

Buying and selling

Shrewd buying and wise selling are frequently as important as all the other skills of good management.

These are points to consider:

Buying to fit the need is more important than price.

Quantity purchasing, at a discount, saves money—but don't "over-buy" materials that are perishable or deteriorate in storage.

Know your deal, schedule of payments, interest, value of guarantee, quality—and read all purchase contracts carefully, before signing.

Successfully selling many farm products at top prices requires knowledge of the market, going prices—when to sell and where. Markets may be only a few miles apart, with worthwhile differences in price; equally easy to reach. Some days of the week are better than others—pick the better ones. Getting produce or livestock to the right market at the right time pays well. Radio market reports help; and an inexpensive phone call more than pays for itself if you get a price advantage.

Knowing your buyers, their preferences, and what causes them to pay better prices, helps in planning crops—when to sell, and to whom.



You and your Community

WHAT THIS COUNTRY needs is more old-fashioned barn raisings" was the comment of a professional chamber of commerce leader when he took a close look at the small community in a number of rural areas. "A lot of neighboring people got together at barn raisings where they all pitched in and accomplished results that would be impossible if one or two had tried to do it alone."

Community progress and well-being requires the combined efforts of everyone and the modern answer is community clubs, and groups, each covering a comparatively small area and with every farmer an active member. There are hundreds of such clubs all over the nation and the results they have achieved are remarkable.

The objectives of a real community club must be founded on the old idea of working together for the greatest good to everybody. Everyone invited and heartily welcomed. Pooling the abilities, energies and the ideas of many, and working side-by-side toward accomplishment makes for astonishing progress in building a better community for good living.

People brought together for a

common purpose become better acquainted and many new friendships are formed. Differences of opinion disappear in an atmosphere of mutual effort—young and old acquire a better understanding of each other.

It is easy to get a club started

A community club often starts over the coffee cups in someone's kitchen, two or three neighbors together in the evening talking over common problems that affect themselves and others in the vicinity. This leads to bringing in other folks for further talks, and soon each brings in another until enough become interested to organize a club. This sort of informal friendly beginning builds mutual confidence and a firm foundation for future accomplishment.

The first step of organization is to select a leader, someone well liked and with a flare for getting things done, and two or three others to help him keep the ball rolling. Many clubs have found that a young fellow makes the best vice-president or vice-chairman for he can enthuse the teenagers and young people with the community

spirit and get their whole-hearted cooperation.

Plan your projects

Laying plans comes next, a list of the things that should be done and ideas on possible ways to do them. Starting with the simple things gets everybody into the act, and lets the satisfaction of accomplishing these create the force that will put across bigger projects in the future.

Committees should be formed for each project, to divide the work and responsibility—and to avoid confusion in leadership. A written record of the activities of each committee should be prepared, simple and informal, and presented to all of the members at regular meetings to be voted on if desired.

Even the basic beginning work of the group will by its success stimulate effort—bring in more active participants. Inviting local business men at the beginning encourages their support and help to improve the community that is their source of business; they want to share in its progress.

What a club can do

Taken from the programs of many successful community clubs, these are some of the things your club can do . . .

Select a name for your group and let your local newspaper know all about it.

Print up some small signs reading—"Member of———(Name of your club or group———)," and have each member place one at the entrance to his farm.

Start a drive among all the members, a Clean-Up and Brighten-Up campaign to paint dingy looking buildings, remove weeds, wild growth and rubbish from entranceways and fence lines, tighten fences, cut down or trim wind-broken trees, fix up yards, plant flowers and whatever else is needed to give their places a well cared-for and prosperous appearance. When one gets started others will soon follow, personal pride will see to that. One community got the ball rolling by organizing some teen-age crews that followed the roads from farm to farm and painted mailboxes gleaming white, trimming the tall grass and weeds around them. Owners quickly saw the light and paint brushes and mowing machines started working as never before! The mail carriers liked the idea too, and deliveries seemed to improve all by themselves.

What does your community need?

Make a careful survey of what your community needs most. It may be improvements in high-line or telephone service, better side road maintenance, small bridge and culvert repairs or work on ditches, creeks, and rivers. When your community acts as a group,



can get action from county and state authorities that would be impossible if requested by just a few individuals.

Special public improvement projects are needed in many communities and they can be done when the community works together as a club. Some cost money, but there is always a way to finance something that is needed and will bring long-time benefits. Others may need only work, and it is astonishing what fifty or a hundred people can do if they make a game of it.

Check this list

A list of community improvement ideas would include—

Establishment of a recreational center for picnics and meetings.

It could have a swimming pool, skating rink with a warming house for winter use, picnic tables, barbeque and some home-made playgroud swings and seesaws for the little ones. Members can take turns in keeping it in good condition.

Beautification of local parks and cemeteries.

Repairing and painting of churches.

Construction of a library.

Traffic lights at the school.

Volunteer fire department with necessary equipment.

Organize a community Red Cross unit with training for first aid.

Establishing a community roadside stand on the main highway for the sale of fruit, vegetables and eggs.

Working for better school facilities and bus service if needed.

Establishing a program of safety and health education.

Many more could be added to a

list like the above. It does not matter so much what is done as it is to keep up the idea of working together to make your community a source of pride, attractive and progressive for yourselves, newcomers and the younger generation that will follow you. Keep the spirit alive with community parties, suppers and frequent get-togethers.

Clean Eggs

NOBODY wants to buy dirty eggs. Even under the best of conditions you cannot expect 100% clean eggs but you can get more of them if you follow these suggestions . . .

Check your laying house and find out why eggs are getting dirty.

Use deep litter and keep it loose for faster drying.

Place drains around waterers, wet feet pick up dirt, make dirty nests and dirty eggs.

Check ventilation. Stagnant air causes dampness that is carried into nests.

Gather eggs three times a day. Clean gathering pans or baskets. Keep your hands clean.

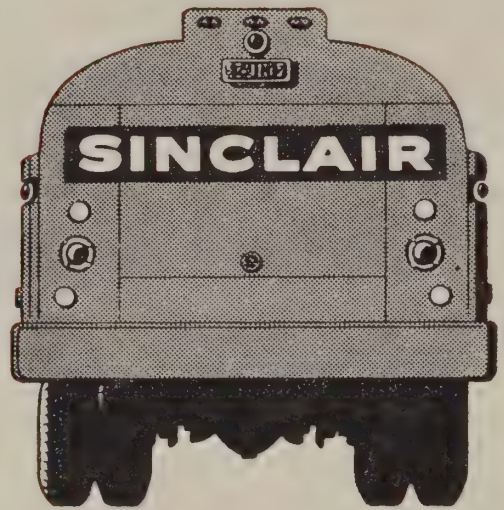
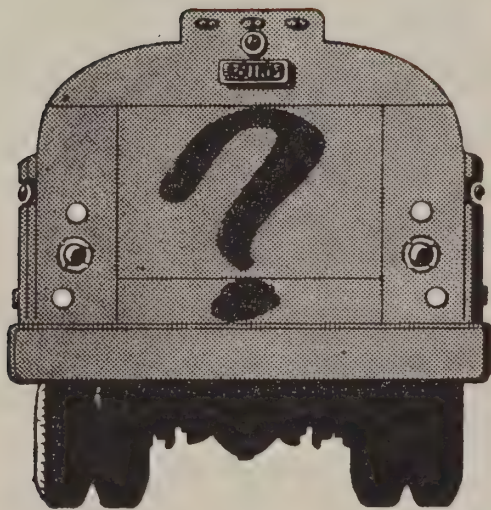
Replace nest litter frequently. A dirty nest means dirty eggs.

When you do get dirty eggs, either clean them or keep them for home use. You can lose as much as \$100 to \$250 a year on dirty eggs from a flock of 300 good layers, so watching their appearance means money to you.



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What You Can Do With Extra Telephones



TWELVE FARMERS helped a rural telephone company make a nine month study of new ways to improve the usefulness of the telephone on the farm. Four to nine telephones were placed on each farm and on two of them a two-way intercommunication system consisting of a loud-speaker and microphone was installed between the house and one other building. Results of the test showed that tremendous savings were made in the time consumed in rushing from barn to house to answer an important call, fewer calls were missed and that the feeling of security was greatly increased in case of fire or accident.

installed at various places so that a single portable set can be used. A switchbox at the house makes it possible to transfer an incoming call to any outbuilding telephone.

Extension telephones in the home are not new but only a very few of them have been installed in farm homes. A survey shows that most farm telephones are located in the kitchen. The most popular place for an extension telephone is in the "master" bedroom or connecting hallway if the house is a two-story one. Other good locations for an extra telephone are the room used for an office, the basement or utility room or in a hallway that is accessible from several rooms. When building a new house have jacks (plug-ins) wired in by the electrician.

Home to Barn, Stop to other building

The special house-to-farm-building hook-up used is more than an ordinary extension telephone. It is also an inter-communication system, which allows conversation between the house and outbuilding independent of the telephone line by simply turning a switch and pushing a buzzer button on the set. A long ringing yard bell, operated by a pushbutton at the house, greatly increases the audible range of a call. One or several outbuilding telephones can be permanently located around the farm as desired or plug-in jacks can be

Farm "Intercom" system

An inter-communication system consists of a loud speaker and a microphone at each end of a line. The speaker can be tuned up to be heard as far as forty feet from the set. If the set is left "open", a man working in his shop can hear a message and answer it without stopping whatever he is doing. One farmer found an intercom very useful at farrowing time, he had his set hooked up between the house and farrowing barn so that he could flip a switch and listen in at any time during the night.

Your Health

Personal health is the most valuable thing a farm family can have. Take better care of it.



PEOPLE CAN KEEP well if they observe the common sense rules of moderate living and taking care of themselves. It's a good idea to stop at least once a month and check the following essentials of health to see if you are trying as much as you should to keep your physical condition up to par

- Avoid accidents by watching what you do . . . being careful around machinery . . . thinking before you act . . . removing the hazards that cause falls, cuts and burns.
- Sensible eating habits . . . avoid foods that disagree with you . . . don't eat too much or too fast . . . keep a "balanced" diet.
- Plenty of rest . . . short periods of relaxation when the going is rough . . . good beds and air or heat enough to sleep in comfort.
- Worry . . . it's bad for the nervous system and it can't do any good.
- Work within your limits . . . don't try to be a weightlifter, a speed demon or a mule for endurance . . . plan your work to be done an easier way.
- Take care of a cold as soon as it starts . . . treat cuts and scratches to prevent infection.
- Learn to laugh a little more . . . no matter what happens it could be worse.

SAFE DRINKING WATER

Test your well at least every two years, or at the first signs of cloudy appearance or strange taste. Well casings should extend above ground, in cement, to prevent seepage of surface water, septic tank run-off and dirt. Ask your county agent about water testing.

INSECT CONTROL

Mosquitoes and flies carry infection from barn yards and swamps, causing many kinds of sickness. Modern spray materials will kill them and protect your health if used regularly.

AVOID STRAINS

Learn to lift properly, using your legs as well as your back. Leverage increases your strength. Carts are better than carrying. Take it easy with animals.

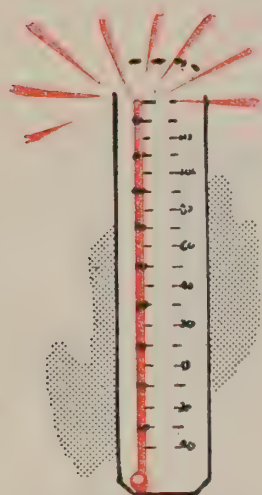
YOUR MEDICINE CABINET

Have two—one in the house and one in the barn. Keep stocked with plenty of standard first aid needs. When any item gets low, put it on your shopping list. Ask your druggist about supplies and their use.

FIRST AID

Get a first aid chart or booklet from your druggist and keep it handy. Teach the children about first aid. Learn and practice artificial respiration so that all your family know how to apply it quickly in case of emergency.

Don't trust it all to luck — Use good common sense. Be ready for emergencies.



How to tell **danger** **temperatures** of stored hay

IT IS no longer necessary to guess at the fire danger of a hay-mow filled with damp hay. Researchers have worked out the following table of temperature danger-signals.

Take the temperature reading at various depths below the surface with a thermometer attached to the end of a pipe or rod. Any reading below 120 degrees F. is not dangerous. Higher readings than that are unusual, and warrant close observation. Take the following steps if you find the hay tempera-

ture above 120 degrees:

150 degrees—Your hay is entering the danger zone.

160 degrees—Prepare to remove hay. Automatic alarm will sound if you have one installed.

170 degrees—Maintain constant vigilance. Look for hot spots.

175 degrees—Keep all door openings closed. Expect hot spots.

180 degrees—Call fire department for standby service. (Also notify insurance man).

190 degrees—Remove animals and tools. Remove hay. Be extremely careful.

Keep **SAFE** with insecticides

Insecticides are frequently poisonous, if accidentally taken internally, and can burn the skin and your eyes. Animals can be made very sick or killed by some of them. But they can be safely used if you follow directions and take common-sense precautions.

Read the label, particularly the warnings and cautions, before opening the container and before use.

Keep them out of reach of children, pets, and irresponsible persons. In case of accidental poisoning, call a physician or get the patient to a hospital at once. Check the label for possible antidotes.

Always keep in original, closed,

and properly labeled containers.

Store in a safe, separate room, cabinet or closet, or on a high shelf where it is not exposed to excess sun or cold.

Never store pest control materials where feed or food stuffs are stored or handled.

Wash hands and face after spraying or dusting.

Do not smoke while spraying or dusting.

Do not spill insecticides on the skin or clothing; if you do, wash thoroughly as soon as possible.

When treating around livestock quarters, cover food and water containers.

Kitchen Tricks!

* Spread aluminum foil in the bottom of the oven and in the drip tray—saves a lot of annoying cleaning.

* Baking a chicken? Here's two ways to make it a little different—(1) Baste it with a mixture of $\frac{1}{2}$ cup melted shortening to which has been added 2 tablespoons of frozen orange juice. (2) Pour a can of creamed chicken soup over it—you'll have a wonderful gravy without the trouble of measuring and mixing ingredients.

* If you have dry spots on dampened laundry at ironing time, rub an ice cube over them.

* Brown rust stains from water, and black streaks that don't scour off the enameled kitchen sink will disappear if you use a little vinegar with the bleach or scouring powder.

* Coat the labels on extract and medicine bottles with transparent nail polish. They can be wiped clean with a damp cloth.

* A little baking soda will remove brown spots from your electric iron—without scratching.

* The handiest gadget around the stove is a magnetic hotpan holder. They stick to any iron surface, even enameled ones like the stove or refrigerator. If you cannot buy them, you can purchase small magnets at most dime or hardware stores for a few cents each and sew inside a loop on your present holders.

* Use the new "measuring" canning jars to proportion the ingredients for a salad dressing and then shake them up. You can mix pancake and waffle batter in the same way—quick, easy and no fussing with a power or hand mixer.



* No-rub furniture wax gives a protective coating to silver trays, candle-sticks, trophies so they won't tarnish as quickly. First clean silver with silver polish, wash in warm sudsy water and dry thoroughly. Saturate a clean soft cloth with no-rub furniture wax and apply to silver (wrap cloth around old toothbrush to get into engraved patterns). Let wax dry to a haze, then wipe off with soft dry cloth.

* If you have to lend dishes for a picnic, write your name on the bottom of each with bright nail polish. It won't wash off.

* For a new taste treat try making potato chips and french fries in your deep fryer—with sweet potatoes. Same procedure as used with white potatoes. Different and delicious. Another tasty sweet potato idea is to slice like carrot sticks—chill and add to your relish tray. Surprisingly good.

* Keep your refrigerator sweet and fresh with a piece of charcoal the size of your fist or larger—placed on one of the shelves. A common practice in the "ice box" days that most have forgotten.

* Aluminum nails, medium and large sized, speed the baking of roasts and potatoes. Push a few into potatoes or meat—they carry the heat in—fast.



Freeze It!

Some ideas and suggestions about "putting up" foods for winter

KEEP YOUR HOME freezer busy . . . not as a long-time food warehouse but as a real daily help-mate and a saver of time and money. Freezing is the easiest way to keep most of your garden's products to serve "fresh" long after the growing season is over. You can cook and bake in advance so that when holidays come or unexpected company appears, your freezer will supply a good share of the meal.

Make two instead of one

It's easy to save lots of kitchen time in cake and pie baking. It takes the same amount of work to get ready to bake one cake, pie or coffee cake as it does two, and as much to clean up afterwards. Make one for to-day and freeze the others for later use.

What to freeze

There are very few foods which cannot be frozen satisfactorily. Tomatoes, starch foods such as potatoes, macaroni and spaghetti, roasted stuffed fowl and some others are not recommended for home freezing. Unpasteurized milk, cream or butter and cheese made from it should not be frozen. Fatty fish becomes rancid unless

kept at 20 degrees. Cooked custards, gelatins and some egg and pork products do not freeze well. Stews and fried meats will keep safely but lose taste when thawed.

Packaging

Good packaging is very important. The better the material you use for wrapping the better flavor and appearance will be retained. Wrapping to fully protect your foods must **keep out air and keep moisture in**. The least bit of loss of either will cause spoilage, rancid taste and bad odors in your freezer. Good packaging is easy if you use the right materials and take time to do it carefully.

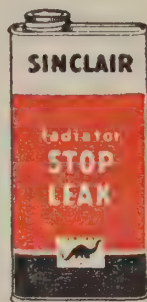
When putting packages in the freezer, place them against the bottom or sides of the freezer where they will freeze more quickly. After 24 hours they can be moved to the center to make room for more packages to be frozen. Always leave a little space between packages for cold air circulation, and at least an inch of clear space between your foods and the top of the freezer.

* Commercially frozen foods frequently have flimsy looking packages — these are adequate because commercial freezing is many times faster than home freezing.

Often these little Extras can Save you a lot



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STOP LEAK
Plugs tiny holes
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RADIATOR FLUSH
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and deposits.



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WATER PUMP
LUBRICANT AND
RUST RESISTOR
Protects water pump
and cooling system

UPPER LUBRICANT
Keeps valves, rings
free and clean



WINDSHIELD
WASHER SOLVENT
Removes hard-to-
clean substances
from windshield



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SINCLAIR SPECIALTY PRODUCTS

Can it!

Some new ideas and methods on "putting up things for winter"



A GOOD START is to refer to your book on canning methods and recipes prepared by the maker of the jars or the pressure cooker you use. Easy to forget important details between seasons. If you don't have such instructions, better send for them now.

List your supplies and equipment a few days in advance. A whole batch can be lost for the want of one small item.

How many jars will you need? The following table of yields are for home-canned fresh fruits and vegetables. (U.S.D.A.) Quantity varies with large fruits due to size and how close you pack them when preserving:

- 43-lb. bushel of apples—16 to 20 quarts
- 12-pint flat of blueberries—12 pints
- 48-lb. bushel of peaches—16 to 22 quarts
- 16-lb. lug of peaches—10 to 12 quarts
- 18-lb. lug of pears—9 quarts
- 22-lb. ($\frac{1}{2}$ bushel) pears—11 quarts
- 7-lb. basket of plums—8 pints
- 24-lb. lug of plums—12 quarts
- 48-lb. bushel of cucumbers—16 quarts pickles
- 53-lb. bushel of tomatoes—16-20 quarts canned or 16 quarts juice.

Canning Hints

Put up in small amounts, fresh from the garden, when vegetables or fruits are at the peak of ma-

turity. You will have better results than if you preserve too much at one time.

You can wash jars the day before, but keep them inverted on a clean folded cloth.

Protect peaches, pears and apples from changing color by dropping as peeled into a weak salt-vinegar water. Handle them as little as possible.

Do not cook red fruits in tin or in an iron or chipped enamel kettle.

Lift the fruit or vegetable out of the water in which it has been washed. When water is poured off, little particles of dirt will stay in the pan and cling to the food.

You can prevent the skin on blue plums from breaking by pricking the skin in several places.

Let strawberries stand overnight in a heavy syrup or sugar to "plump out" and firm the cells. It helps them retain their color and flavor and prevents floating in the syrup.

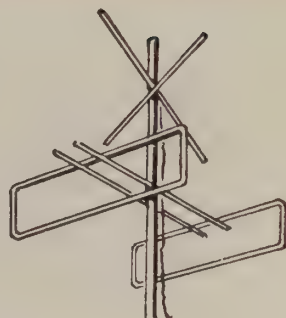
Use a vinegar of 4% to 5% acidity when pickling. If too low in strength, spoilage will occur or the pickles will become soft.

Discard all over-ripe or sour fruits. Badly bruised fruits should not be used as the broken cells may cause spoilage.

Before halving peaches, apricots or pears be sure to wash them carefully.

When you label canned fruits or vegetables, add the date of processing.

Television is bringing new horizons to millions of farm people



THERE IS A WHOLE NEW world waiting for you in a television set, and nothing has done more to relieve the monotony of long bad-weather evenings in farm, or city homes. You get entertainment, movies, news and education right in front of your favorite chair.

Many of the big city television stations are sending programs out as far as 50 miles. Smaller in-between ones reach from 10 to 20 miles. Hills, mountains and deep valleys sometimes block out the lower-powered stations. Rain, wind, even thunderstorms have little effect on reception. If you are in a "fringe" area, investigate carefully before you spend money on a set.

WHEN YOU BUY A SET

It's wise to try two or more sets in your home at the same time. Have the outside antenna installed before making these comparisons. Check the guarantee—it should clearly state the manufacturer's policy on replacement of defective parts. Make definite arrangements about service work with the dealer before you buy. Portable and table model sets have one advantage—you can take them to the service shop for adjustments or repairs.

Don't get too large a set for the size of your room. Even if you can afford sets with 21 or 24 inch screens, remember that a television picture is like a photo enlargement—the bigger the picture the less sharp it is. Sitting close to a large screen reduces the clarity of the picture, and frequently produces eye strain. For the smaller

room, better to stay with the smaller screen. The size—14", 17", 21" or 24"—is the diagonal measurement of the picture area.

The portable type TV has advantages. It's great in a bedroom in case of sickness, out on the porch on hot evening and in the kitchen for mother.

An antenna sticking up above the roof makes a good lightning rod, but can be perfectly safe if properly grounded. See that there is an approved lightning cut-out on the lead-in and that it is carefully attached to an iron rod (not less than 36 inches long) driven into the ground. In extremely dry weather occasionally wet the ground around the grounding rod. Antennas should be erected so that they can either be easily taken down or hinged to fold down in case of tornado warnings.

SUGGESTIONS

When purchasing a set, other than a portable, consider the room where it is to be placed. If the seating arrangement is such that set should be placed in a spot normally awkward for traffic through the room, be sure your set is equipped with large, easy rolling wheels, and a long extension cord so you can move it without effort to a good viewing position, and move it away when not in use. Always keep a light on when viewing, to reduce eye strain. Glancing away from the screen occasionally rests eyes.

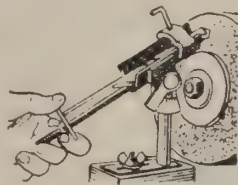
Sharpening Metal Drills



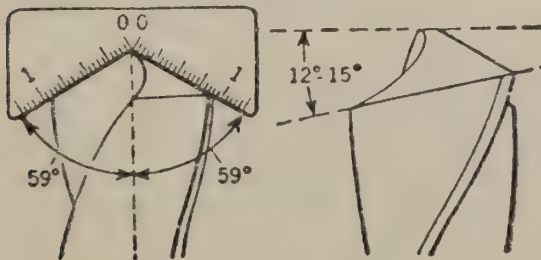
*Look for this emblem—
your assurance of top
quality.*

Metal drills are difficult to properly sharpen, and frequent grinding works the drill down to the thicker part of the center web and decreases its efficiency. A simple drill holder for grinding is a good investment when drills get considerable use.

The length of both of the cutting lips of a drill must be equal. If not the point of the drill will be off center and the hole it cuts will be out of round and oversize. The angle of the cutting lips must be exactly 59 degrees and both must be alike. Grind back from the cutting edge very slightly to allow clearance and give the edge a chance to get a "bite" on the work, otherwise the cutting edge simply slides, cannot cut clean and overheats and burns. Too much clearance soon burrs the cutting edge and also stops cutting. Before grinding a drill compare it to a new one—and use the new one as a guide. A slight rocking motion of the drill against the sharpening stone (a matter of careful practice) helps get the right clearance.



Drill Holder



For drills to be used in thin sheet metal or brass, slightly bevel the cutting edge of the lip to prevent the tendency to dig in.

Drilling Hints

Using a center punch to start the drill prevents the tendency of the drill to "walk around" on the work with the possibility of breaking off. When using short stubs of drills, drill a smaller or pilot hole first and also when hand drilling any hole that is over $\frac{3}{8}$ inch in diameter, for in the larger sized drills the center or point does little more than wear its way through.

When drills chip, the feed or pressure is excessive, or the clearance is too great. When drills burn, they are either dull, have insufficient clearance, or are being run at excessive speed.

To increase drill life use the following lubricants:

- Hard steel—turpentine or kerosene.
- Soft steel—lard oil.
- Brass—soda water if anything.
- Aluminum—kerosene or dry.
- Cast iron—nothing.

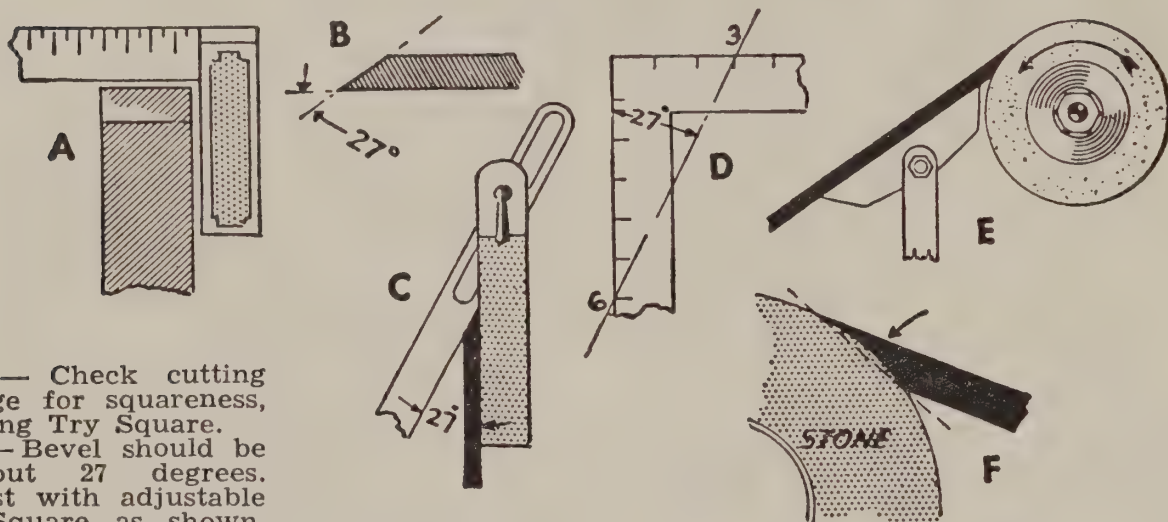
Wood Bits

To sharpen an auger bit get a special auger-bit file, although a small taper file can be used. The lip is sharpened by resting the point on a board and then filing only on the upper surface of the lip. The spurs are sharpened by filing them on the inside only. Filing on the outside will make the bit cut too small a hole and cause the twist to bind. Follow the original taper and angle of the bit.



Sharpening Plane Bits and Chisels

You cannot do a clean job of cutting with a dull, rough edged tool. It takes much less time to "touch up" a chisel or plane bit than it does to try to get by with a dull one.



A — Check cutting edge for squareness, using Try Square.

B — Bevel should be about 27 degrees. Test with adjustable T-Square as shown.

C — To find 27 degree angle set T-Square to dotted line shown at D.

E — Hold bit on a tool rest when grinding.

F — The "hollow" is made by the curve of the grinding stone.

The first step is to check the cutting edge for squareness, using a small try square for the test. Chisel corners should be square. Plane bit corners should be rounded 1/64 inch to prevent forming ridges on a planed surface.

Use a medium grit grinding wheel. Test the angle with the T-bevel until a slight wire edge can be felt. Dip the edge in water occasionally, as overheating, shown by a bluish color, will ruin the temper.

Grind slowly, with very little pressure. If the edge of the grinding wheel is rough and uneven, use the side of the wheel. For many workmen side-of-the-wheel grinding is better for it is easier to see the angle and hold the edge steady. Hollow grinding cannot be done on the wheel side.

Gouges (curved chisels) are much easier ground on the side of the wheel.



Honing

After grinding, hone on a fine oilstone to remove the wire edge. Whet taper side first, holding the chisel edge squarely on the stone and the heel lifted just enough to clear the stone. Only about 1/32 of an inch of the tool will actually rub on the stone. After a few strokes turn the chisel over with the back flat against the stone and work with a circular motion until the wire edge entirely disappears.

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SINCLAIR

Tractor Lubrication Guide

Special designs may require special recommendations

UNIT	SINCLAIR LUBRICANT RECOMMENDED	GRADE	
		ABOVE 32°F.	BELOW 32°F.
ENGINE CRANKCASE Gasoline Engine	MS-DG-DM—Sinclair Extra Duty Motor Oil	For Proper Grade: See Sinclair Capacity & Recommendation Index Booklet.	
	MS-DG-DM—Sinclair Extra Duty Tenol Extra Motor Oil (Multi-Grade)		
	MS-DG—Tenol		
	MS-DG-DM—Super Tenol		
	DS—Tenol Extra S-2		
	DS—Tenol Extra S-3		
	MS-DG—Sinclair TBT Oil		
	MS-DG—Sinclair Pennsylvania Motor Oil		
	MM (Also ML)—Opaline Motor Oil		
	SAE: 5W-20* 10W 10W-30* 20W,20 30 40 50		
*Sinclair Extra Duty Triple X Motor Oil			
Diesel Engine	MS-DG—Tenol	For Proper Grade: See Sinclair Capacity & Recommendation Index Booklet.	
	MS-DG-DM—Super Tenol		
	DS—Tenol Extra S-2		
	DS—Tenol Extra S-3		
	MS-DG—Sinclair TBT Oil		
	MS-DG-DM—Sinclair Extra Duty Motor Oil		
FLUSHING OF ENGINE CRANKCASE Sinclair Conditioning Oil.....All Seasons			
ENGINE ACCESSORIES			
Distributor Shaft			
Oil.....	Motor Oil.....	Same grade as Engine All Seasons	
Grease.....	Litholine or Sincolube No. 2..		
Distributor Rotor			
Oil.....	Motor Oil.....	SAE: 20.....20W All Seasons	
Grease.....	Litholine or Sincolube No. 2..		
Generator, Starting Motor			
Oil.....	Motor Oil.....	SAE: 20.....20W All Seasons	
Grease.....	Litholine or Sincolube No. 2..		
Fan (if lubricated)			
Oil.....	Motor Oil.....	Same grade as Engine All Seasons	
Grease.....	Litholine or Opaline Chassis Lubricant.....		

UNIT	SINCLAIR LUBRICANT RECOMMENDED	GRADE	
		ABOVE 32°F.	BELOW 32°F.
Water Pump (if lubricated)			
Plain Bearing.....	Litholine.....	All Seasons	
Ball Bearing.....	Motor Oil.....	SAE: 30.....	20W
Oil.....	Motor Oil.....		
Grease.....	Litholine or Opaline Chassis Lubricant.....	All Seasons	
Air Cleaner			
Mesh.....	Motor Oil.....	SAE: 50.....	50
Oil Bath.....	Motor Oil.....	SAE: 50.....	20W or same grade as Engine
DIESEL FUEL INJECTION			
PUMPS.....	Motor Oil.....	SAE: 20.....	20W or same grade as Engine
TRANSMISSIONS, DIFFERENTIALS, TRANSFER CASES, POWER TAKE-OFF DRIVES, FINAL DRIVES.....			
	Opaline Gear Lubricant Sinclair Mineral Gear Oil..	For Proper Grade: See Sinclair Capacity & Recommendation Index Booklet.	
TRACTOR CRAWLERS			
Allis-Chalmers			
Front Idlers, Track Support Rollers and Truck Wheels.	Opaline Pressure System Grease No. 0.....	All Seasons	
Caterpillar			
Front Idlers, Track Rollers and Track Carrier Rollers..	Shamrock Lubricant.....	F.....	F Below 0°F.....Use Motor Oil
International			
Track Idlers and Rollers Plug and Vent.....	Sinclair Mineral Gear Oil.... Opaline Gear Lubricant.....	Above +90°F.: SAE: 250 +50°F. to +90°F.: CX +20°F. to +50°F.: BX Below +20°F.: AX	
Button Head Fitting.....	Sinclair Mineral Gear Oil....	Above +90°F.: SAE: 250 +50°F. to +90°F.: SAE: 140 +20°F. to +50°F.: SAE: 90 Below +20°F.: SAE: 80	
Oliver			
Track Frame Assemblies..	Motor Oil.....	Above +70°F.: SAE: 50 +32°F. to +70°F.: SAE: 40 0°F. to 32°F.: SAE: 30 Below 0°F.: SAE: 20W	
Terra-Trac			
Front Idlers, Track Rollers and Carrier Rollers.....	Litholine or Opaline Chassis Lubricant.....	All Seasons	

TRACTOR LUBRICATION GUIDE—Continued

UNIT	SINCLAIR LUBRICANT RECOMMENDED	GRADE	
		ABOVE 32°F.	BELOW 32°F.
GEARS			
Open.....	Onyx Lubricant.....	H.....	500
	Jet Lubricant.....	No.: 8.....	5
Closed.....	Opaline Gear Lubricant.....	CX, BX.....	BX, AX
WIRE ROPES (if lubricated)...			
	Onyx Lubricant.....	H.....	500
	Jet Lubricant.....	No.: 8.....	8 or 5
GENERAL CHASSIS LUBRICATION			
Fittings.....	Litholine or Opaline Chassis Lubricant.....	All Seasons	
Grease Cups.....	Litholine or Sincolube No. 2..	All Seasons	
CLUTCH RELEASE & PILOT BEARINGS			
Oil.....	Motor Oil.....	SAE: 20.....	20W
Grease:			
Cups.....	Litholine or Sincolube No. 2..	All Seasons	
Fittings.....	Litholine or Opaline Chassis Lubricant.....	All Seasons	
STEERING GEAR			
Oil.....	Opaline Gear Lubricant.....	CX.....	BX
Grease.....	Litholine or Opaline Chassis Lubricant.....	All Seasons	
UNIVERSAL JOINTS			
Plain Bearing.....	Litholine or Sincolube No. 2.. Litholine or Opaline Chassis Lubricant.....	All Seasons	
Roller Bearing.....	Opaline Gear Lubricant.....	CX.....	CX
Needle Bearing.....	Sinclair Mineral Gear Oil....	SAE: 140.....	140
WHEEL BEARINGS.....			
	Litholine or Sincolube No. 2..	All Seasons	
HYDRAULIC CONTROL SYSTEMS.....			
	Motor Oil.....	SAE: 20.....	10W or follow Manufacturer's Recommendations



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KITCHEN MEASURES

The following abbreviations are used on this page:

c = cup; tsp. = teaspoon; tblsp. = tablespoon.

TABLE OF MEASURES

3 tsp. = 1 tblsp.	4 c. = 1 qt.
4 tblsp. = $\frac{1}{4}$ c.	4 qt. = 1 gal.
16 tblsp. = 1 c.	8 qt. (dry) = 1 pk.
2 c. = 1 pt.	

EQUIVALENTS (Approximate)

8 to 10 egg whites = 1 c.
12 to 14 egg yolks = 1 c.
Juice of 1 med. orange = $\frac{1}{2}$ c.
Juice of 1 med. lemon = $\frac{1}{4}$ c.
1 c. dry beans = $2\frac{1}{2}$ c. soaked
$\frac{1}{2}$ lb. cheese = 2 + c. grated
1 lb. prunes = 4 c. soaked and cooked
1 c. uncooked rice = 3 c. or more when cooked

A GUIDE TO BAKING

Kind of Oven	Temperature
Very slow..	200° to 250° F.
Slow	275° to 325° F.
Moderate	350° to 375° F.
Moderately Hot	400° to 425° F.
Hot	450° to 475° F.
Very hot	500° to 550° F.

WHAT ONE POUND YIELDS

Sifted all-purpose flour = 4 c.
Sifted cake flour = $4\frac{1}{2}$ c.
Graham flour = $3\frac{1}{2}$ c.
Cornmeal = 3 c.
Rye flour = 5 c.
Rice = 2 c.
Dried beans = $2\frac{1}{3}$ c.
White sugar = $2\frac{1}{4}$ c.
Brown sugar = $2\frac{1}{4}$ c. firmly packed
Molasses and syrup = $1\frac{1}{3}$ c.
Table salt = $2\frac{1}{3}$ c.
Fat (butter, lard, etc.) = 2 c.
Milk = 2 c.
Eggs, average size = 9 eggs
Raisins (seedless) = 3 c.
Apricots = 3 c.
Dates = $2\frac{1}{2}$ c. seeded and chopped
Marshmallows = 60
Nuts in the shell (peanuts, pecans, walnuts) = 2 c. nut meats
Nut meats = 4 c. chopped
Chopped meat (packed) = 2 c.

Sometimes cans sold as "specials" may hold a few ounces less than standard size so are not really a saving.

SIZES OF CANS

Size	Average Net Weight	Average Contents	Example
$\frac{1}{2}$ lb. or 8 oz.....	8 oz.....	1 c.....	tuna fish, pineapple
No. 1 or picnic.....	11 oz.....	$1\frac{1}{3}$ c.....	tomato juice
No. 1 tall.....	1 lb.....	2 c.....	salmon
No. 2.....	1 lb. 4 oz.....	$2\frac{1}{2}$ c.....	peas, corn
No. $2\frac{1}{2}$	1 lb. 12 oz.....	$3\frac{1}{2}$ c.....	tomatoes, fruit
No. 10.....	6 lb. 10 oz.....	13 c.....	"pie" fruit

CANDY TEMPERATURE AND CANDY TESTS

Stage	Temperature	Test
Thread	230°—234° F.....	Syrup spins a thread from spoon.
Soft ball.....	232°—238° F.....	In cold water—soft ball which can be handled.
Firm ball.....	246°—250° F.....	In cold water—firm ball.
Hard ball.....	265°—270° F.....	In cold water—hard ball.
Crack (or brittle).....	290°—300° F.....	Hardens at once in cold water, cracks rather than bends when hit on hard surface.
Caramel	320°—350° F.....	Syrup turns brown.

NUMBER OF POUNDS TO THE BUSHEL*

*Approximate. Legal weights may vary in different States.

Alfalfa	60	Corn (Pop) (In Ear)...	70	Millet, Hungarian	48
Apples (Green)	48	Corn (Kafir).....	56	Oats	32
Apples (Dried).....	24	Corn Meal.....	50	Onions	57
Barley	48	Coal, Hard.....	80	Orchard Grass.....	14
Beans (White).....	60	Coal, Charcoal	20	Peaches (Dried).....	33
Beans (Castor).....	46	Coke	40	Peas	60
Beans (Soy).....	60	Cranberries	32	Potatoes	60
Bran	20	Flax Seed.....	56	Potatoes (Sweet).....	50
Buckwheat	48	Grapes	40	Red Top Seed.....	14
Blue-Grass Seed.....	14	Hair (Plastering).....	8	Rye	56
Cherries	40	Hemp Seed.....	44	Timothy Seed	45
Clover Seed.....	60	Kafir Corn.....	56	Tomatoes	50
Clover (Sweet).....	60	Lime	80	Turnips	55
Corn (Shelled)	56	Malt	38	Wheat	60
Corn (In Ear).....	70	Millet Seed, Common..	50		

PROPORTION OF WEIGHT OF ANIMALS AFTER BUTCHERING

BEEF		HOG		LAMB	
% of Carcass Wt.		% of Carcass Wt.		% of Carcass Wt.	
Front Quarter	52	Loin (chops)	14	Leg	13
Hind Quarter	48	Shoulder (butt off)....	9	Rib	7
Ribs	9.5	Butts	7	Loin	5
Loin	18	Spare Ribs	2	Shoulder	10
Round	24	Ham	21	Stew	8
Chuck	22	Bacon	15	Neck	1.5
Plate	14.5	Lard	12	Kidney Fat	1.5
Flank and Shank....	9	Neck bone, feet, etc....	4	Fat Trimmings.....	2.5
Kidney Suet	3	Trimnings	13	Shrink	1
		Waste	3		

WEIGHTS OF BUILDING MATERIALS

(Pounds per cubic foot)

Limestone	164
Concrete	150
Common brick	125
Gravel	120
Earth (rammed).....	100
Sand	100
Cement	94
Water	62.4
Lime	53
Hemlock	28
Oak, red.....	44
Pine, yellow	36
Douglas fir.....	30
Cypress	29
Oak, white	47

WEIGHTS OF MILK AND CREAM

Cream (30% butterfat), quart, 2.1075 lbs.
Cream (30% butterfat), gallon, 8.43 lbs.
Milk (3% butterfat @ 68°) quart, 2.15 lbs.
Milk (3% butterfat @ 68°) gal., 8.60 lbs.

SHINGLES NEEDED IN A ROOF

Double the rafters and multiply by the length of the building. If shingles are exposed 5 inches to the weather multiply by 7½; for 4½-inch exposure, multiply by 8; and for 4-inch exposure, by 9 to find the number required.

ROLL ROOFING

A roofing square is 100 square feet. One roll of asphalt roll roofing will cover a "square" or 100 square feet when lapped two inches at the joints. A square of asphalt shingles will also cover 100 square feet. When laying over old shingles be sure to prepare a suitable surface. Nail all loose shingles, flatten down projecting edges, and make the entire surface as even as possible.

USEFUL TABLES AND MEASURES

ACREAGE PER MILE OF VARIOUS WIDTHS

Width	Acres	Width	Acres
1 foot.....	0.121	15 feet.....	1.815
5 feet.....	0.605	16 feet.....	1.936
8 feet.....	0.968	18 feet.....	2.178
10 feet.....	1.21	20 feet.....	2.42
12 feet.....	1.452	24 feet.....	2.904
14 feet.....	1.694	25 feet.....	3.025

MILES TRAVELED IN PLANTING AN ACRE 3'-6" ROWS

1 row planter.....	2.34 miles
2 row planter.....	1.17 miles
3 row planter.....	.78 miles

ACRES PLANTED IN TRAVELING ONE MILE 3'-6" ROWS

1 row planter.....	.42 acres
2 row planter.....	.84 acres
3 row planter.....	1.26 acres

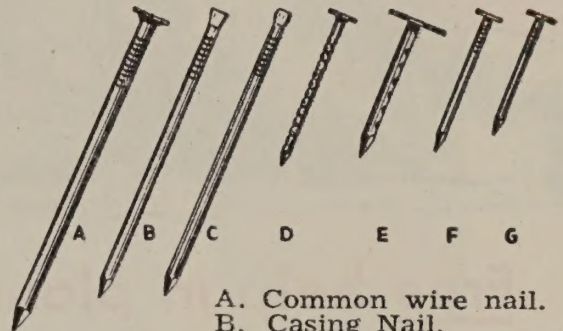
SIZES OF IRON WIRE

Gauge No.	Diam. Inches	Ft. to Lb.	Weight 100 Ft.	Weight 1 Mile
8	.162	14¼	6.96	367
9	.148	17¼	5.08	306
10	.135	20½	4.83	255
11	.120	26	3.82	202
12	.105	34	2.92	154
13	.092	45	2.24	118
14	.080	59	1.69	89
15	.072	73	1.37	72
16	.063	95	1.05	55
17	.054	130	.77	41
18	.047	172	.58	31
19	.041	222	.45	24
20	.035	313	.32	17

COMMON FRACTIONS AND DECIMAL EQUIVALENTS

Common Fraction	Decimal Equivalent	Common Fraction	Decimal Equivalent
1	1	½	50
⅛	9375	⅞	4375
⅜	875	⅝	375
⅙	8125	⅙	3215
¾	75	¼	25
⅓	6875	⅓	1875
⅝	625	⅓	125
⅙	5625	⅙	0625

NAILS



A. Common wire nail. B. Casing Nail. C. Finishing nail. D. Roofing nail. E. Cigar box nail. F. Shingle nail. G. Berry box nail.

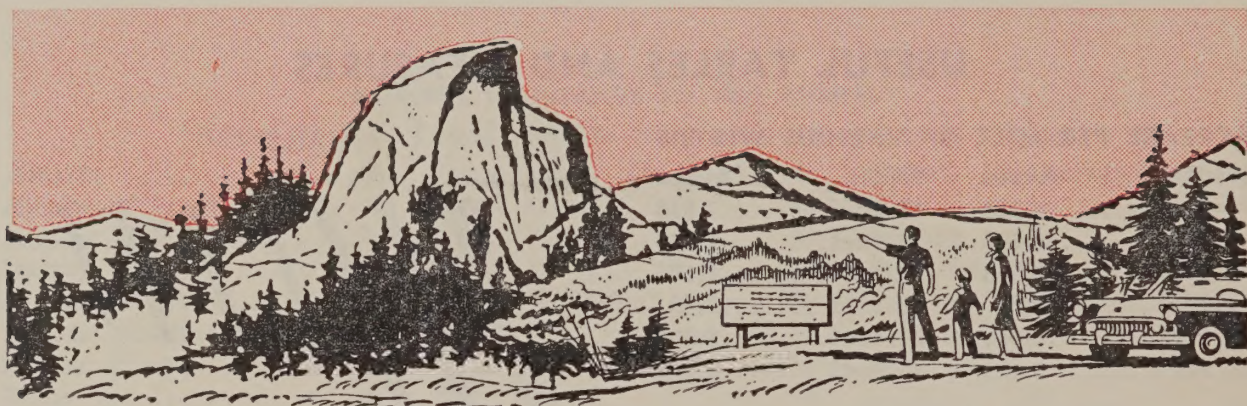
COMMON WIRE NAILS

Penny Weight Sizes—Number Per Pound

Size	Length and Gauge	Approx. No. to Lb.
2d	1 inch No. 15	876
3d	1¼ inch No. 14	568
4d	1½ inch No. 12½	316
5d	1¾ inch No. 12½	271
6d	2 inch No. 11½	174
7d	2¼ inch No. 11½	161
8d	2½ inch No. 10¼	106
9d	2¾ inch No. 10¼	96
10d	3 inch No. 9	69
12d	3¼ inch No. 9	63
16d	3½ inch No. 8	49
20d	4 inch No. 6	31
30d	4½ inch No. 5	24
40d	5 inch No. 4	18
50d	5½ inch No. 3	14
60d	6 inch No. 2	11

COMMON SPIKE SIZES

Length and Gauge	Diam. Head	Approx. No. to Lb.
3 inch No. 6	⅜ inch	41
3¼ inch No. 6	⅜ inch	38
3½ inch No. 5	⅞ inch	30
4 inch No. 4	⅞ inch	23
4½ inch No. 3	½ inch	17
5 inch No. 2	⅜ inch	13
5½ inch No. 2	⅜ inch	10
6 inch No. 1	⅞ inch	9
7 inch ⅝ inch	⅝ inch	6
8 inch ⅜ inch	¾ inch	4
9 inch ⅜ inch	¾ inch	3½
10 inch ⅜ inch	¾ inch	3
12 inch ⅜ inch	¾ inch	2½



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(date)

to _____

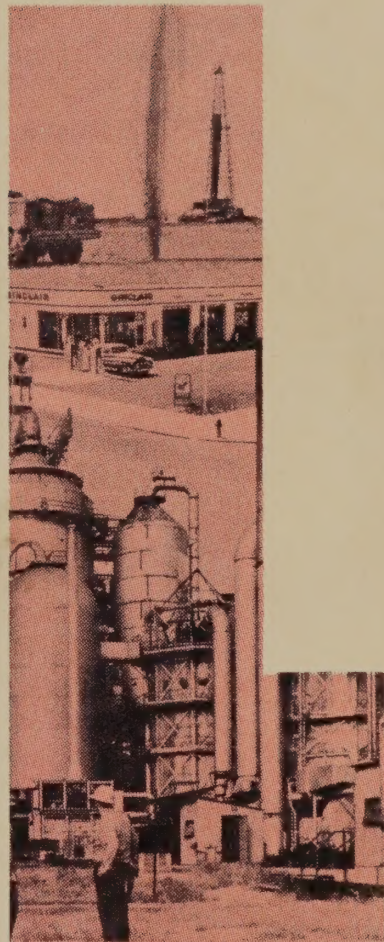
- | | | |
|--|--|---------------------------------|
| ☐ I want the shortest route | ☐ Going | ☐ Return |
| ☐ I want the most interesting route | ☐ Going | ☐ Return |
| ☐ I want to return by a different route | ☐ Send New Tour Booklet | |

NAME _____
(please print plainly)

ADDRESS _____

CITY _____ STATE _____

Mail to nearest Sinclair Auto Tour Service



SINCLAIR

Out of the depths of the earth where oil men probe, petroleum flows in an endless, unseen stream to the refineries of America. At these complex manufacturing plants, elaborate and precise methods change crude oil into the increasing range of products that feed the demand of industry, the farm and the home. From the refineries, the flow continues in every direction, through mile upon mile of pipeline, by ocean-going tanker, by truck and by rail, reaching bulk plants and thousands of retail outlets. Now a multitude of different brands and grades — gasoline, fuels and lubricants, home heating oils, gas for cooking, and fertilizer — the products of petroleum arrive at your doorstep ready to serve your needs at every hour of the day.

